

PURCHASING

November, 1944



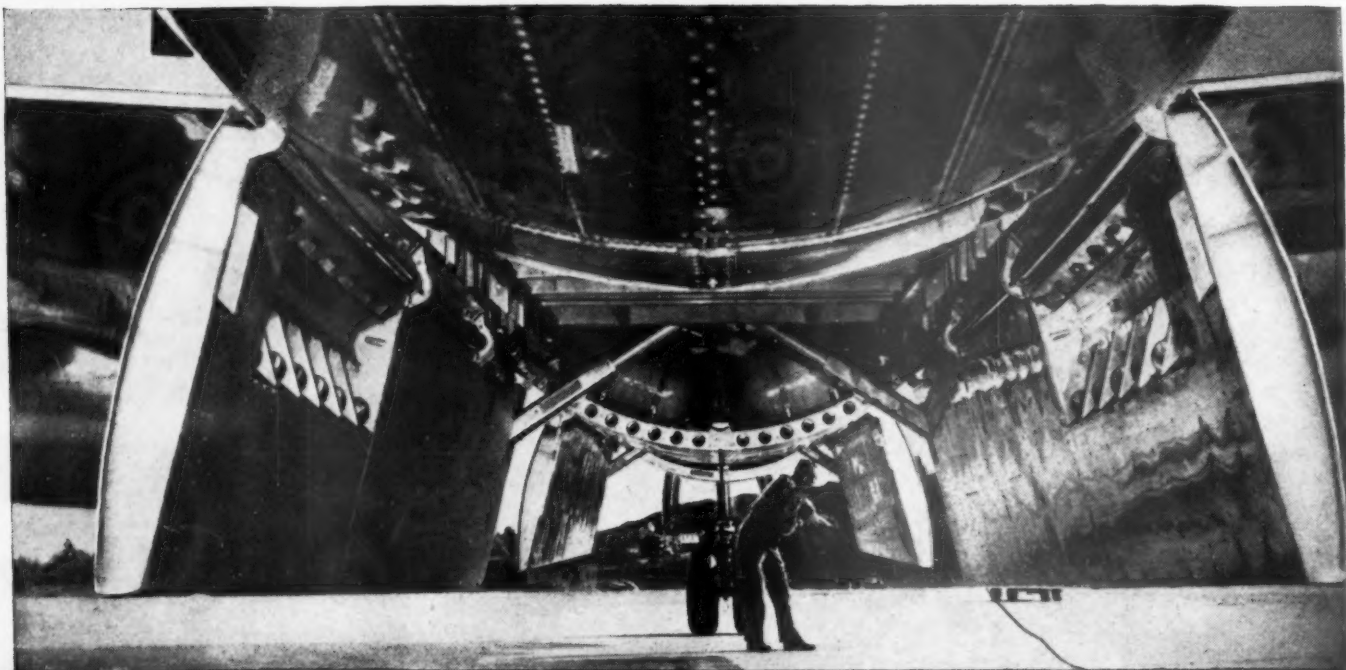
GEORGE DRURY:

THE WESTERN
PURCHASING AGENT

see page 73

TABLE OF CONTENTS

• PAGE 67



Carrying her "eggs" in 2 baskets



LARGEST and deadliest bomber ever built, the B-29 Superfortress owes much of her destructive power to the two bomb bays that enable her to carry a *double* load of "eggs" on every bombing mission.

Mass production of this highly complex weapon of war is a tribute to the efficiency of American industry. And since mass production methods call for effective lubrication, management more and more

is depending on Texaco Engineering Service and Texaco Products.

Preferred in many fields, a few of which are listed at the right, Texaco performance can definitely increase production in *your* plant.

Texaco Lubrication Engineering Service is available to you through more than 2300 Texaco distributing points in the 48 States. The Texas Company, 135 East 42nd Street, New York 17, N. Y.

THEY PREFER TEXACO

★ More buses, more bus lines and more bus-miles are lubricated with Texaco than with any other brand.

★ More stationary Diesel horsepower in the U. S. is lubricated with Texaco than with any other brand.

★ More Diesel horsepower on streamlined trains in the U. S. is lubricated with Texaco than with all other brands combined.

★ More locomotives and railroad cars in the U. S. are lubricated with Texaco than with any other brand.

★ More revenue airline miles in the U. S. are flown with Texaco than with any other brand.

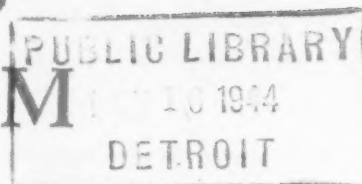


TEXACO Lubricants, Fuels and Engineering Service

TUNE IN THE TEXACO STAR THEATRE EVERY SUNDAY NIGHT—CBS ★ HELP WIN THE WAR BY RETURNING EMPTY DRUMS PROMPTLY

Century is helping to meet

INDUSTRY'S No. 1 PROBLEM



—Making more jobs by helping manufacturers
make more and better products at a lower cost.

Tough job? Sure! But American industry and ingenuity will do it!

The manufacturers of machine tools and other types of processing equipment are modernizing their designs with one purpose in mind—to help John Q. Public get more and better products at a lower cost.

Business realists realize that this is the only *practical* method of opening the public's purse strings—and thus, through stimulated demand, build increased production and more jobs.

Electric motors are production tools, too—a component part of the production tools they drive. Hundreds of leading designers who know that Century motors are designed with various combinations of engineering features to meet specific production problems are taking advantage of the production cost saving possibilities of Century motors.

Century's national organization of motor specialists is helping production machinery and appliance manufacturers effect savings in original design, as well as savings in production output.

This means that the *entire business public*—from the manufacturers of production equipment down through the fabricators of thousands of products, the wholesaler and retailer—all of whom are trying to deliver a better product to the final user at a lower cost—have a direct or indirect stake in how well the Century organization does its job of helping others to make more jobs.

If you are a manufacturer of motorized production equipment or appliances—call the nearest one of Century's 31 branch offices.

A Century Motor Specialist can be of greatest help while your design is in the experimental or drafting board stage.



CENTURY ELECTRIC COMPANY • 1806 Pine Street, St. Louis 3, Missouri

Offices and Stock Points in Principal Cities

HOW TO SCARE UP A BETTER PRODUCT

(Can you name the different products
in this scarecrow? See chart below)

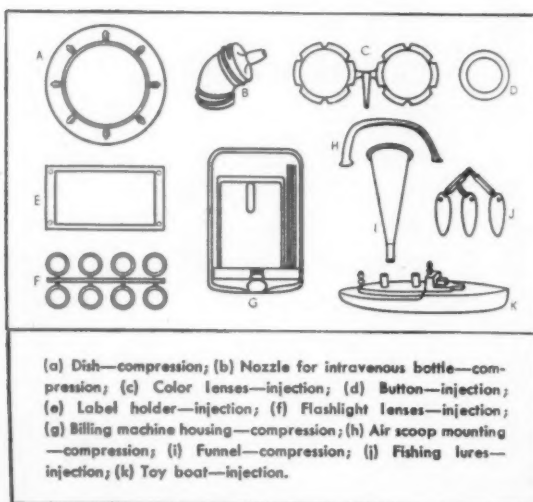



If you're haunted by the desire to improve your present product or to bring out a brand-new product, don't hide your head to this fact: Back of our Plastics Division is an impressive record of planning and producing successful plastic products.

Not only is Continental now equipped to fabricate a wide range of products in the most efficient and economical way possible—by compression, injection, extrusion, lamination or sheet forming; its designers and engineers are among the most skillful in the entire field of plastics.

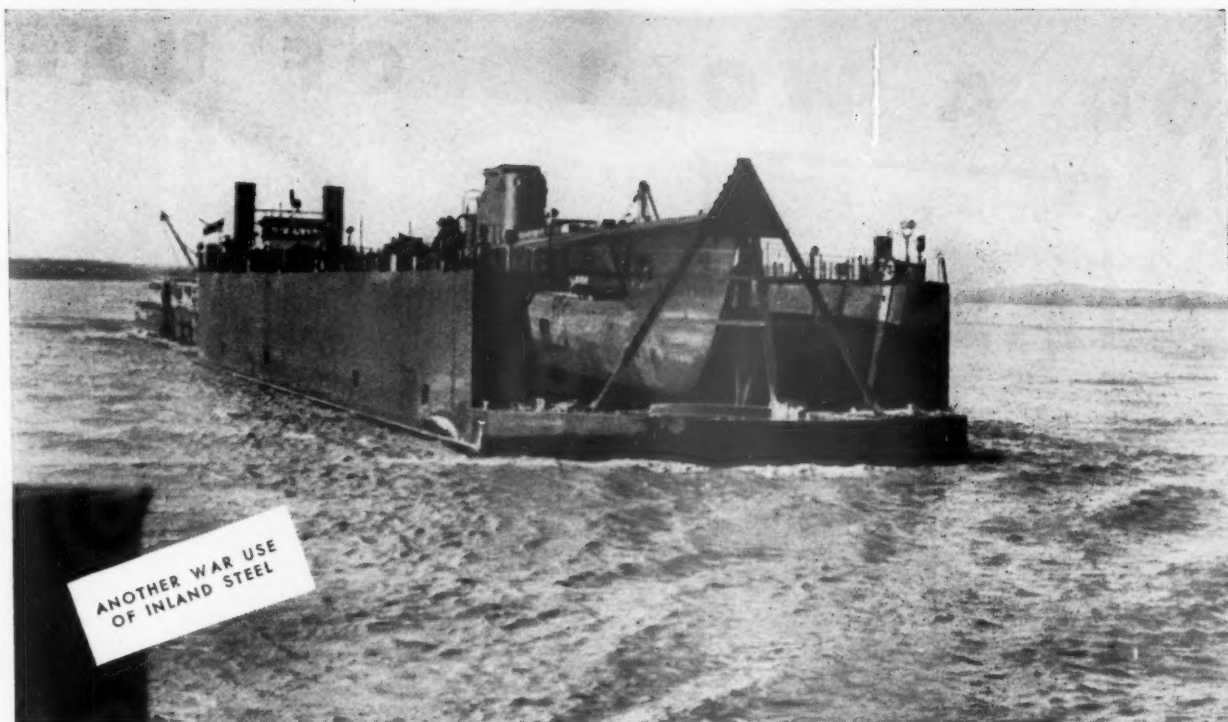
These men work closely with the leading producers of raw materials. So you can be sure we'll select the plastic best fitted for your requirements.

No matter what qualities your design calls for—beauty, toughness, lightness, durability or any others—come to Continental. You'll find an alert, progressive organization equipped to give sound, practical advice and assistance at all times!



CONTINENTAL  PLASTICS DIVISION	CAN COMPANY, INC. HEADQUARTERS: Cambridge, Ohio Sales Representatives in all Principal Cities COMPRESSION • INJECTION • EXTRUSION SHEET FORMING • LAMINATION
--	--

*To give you the best in plastics service, Continental has acquired Reynolds Molded Plastics of Cambridge, Ohio. The facilities of this pioneer organization combined with Continental's extensive resources form a Plastics Division capable of designing, engineering and producing the widest range of plastic products for manufacturers and designers.



Official U. S. Navy photograph.

Ferry float transporting a submarine down the Mississippi for delivery at New Orleans.

FLOATING SUBS TO THE SEA

"Floating Palaces" of Mark Twain's Mississippi River days have given way to watercraft of many kinds. These vessels, built on the Great Lakes, travel down the river to the sea to join the fight against America's enemies. Among these fighting ships are submarines that are transferred down the Illinois-Mississippi Waterway on a ferry float. When a sub has been delivered at New Orleans the ferry is towed upstream to Lake Michigan where it takes on another "fighting" cargo.

Many floating dry docks, as well as the ferry float above, were built by the Chicago Bridge & Iron Co. of plates furnished

by Inland. The dry docks are made in three parts; a large center section and two smaller end sections. When necessary to examine or repair the bottom plates of the dock, the center section can be docked on the two end sections. Likewise, the two end sections can be docked on the center section. When in tow, the end sections are usually docked on the center section.

Before the war, Inland shipped large tonnages of plates to structural shops, tank builders, pipe manufacturers, etc., for peacetime products. When our fighting fleets return to home waters, Inland again will furnish steel for the growing needs of America at peace.



**Sheets • Strip • Tin Plate • Bars • Plates • Floor Plates • Structural
Piling • Rails • Track Accessories • Reinforcing Bars**

INLAND STEEL COMPANY

38 S. Dearborn St., Chicago 3, Ill.

Branch Offices: Cincinnati • Detroit • Kansas City • Milwaukee • New York • St. Louis • St. Paul

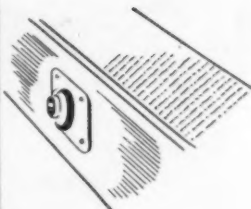
FOR A WORLD OF USES

FOR Outboard Application
Minimum Machining
Self-Alignment
Lubricant Retention
Dirt Exclusion



SELECT

**FAFNIR TYPE LCJ
FLANGE CARTRIDGE**
Equipped with Fafnir
Wide Inner Ring
Mechani-Seal Bearing.
For Shaft Diam:
 $\frac{1}{2}$ " to $2\frac{1}{16}$ "



FOR Heavy Thrust combined
with Radial Loads
Heavy Thrust in one
direction
Great axial rigidity
Adjustment as required



SELECT

**FAFNIR 7000 Series
RADIAL-THRUST
BEARING**
Bore Sizes:
12 Mm to 95 Mm



FOR Compactness
Space Saving
Light to Moderate
Radial Loads
Moderate Thrust
(either direction)



SELECT

**FAFNIR 9000 K Series
EXTRA-LIGHT
BEARINGS**
Bore Sizes:
10 Mm to 105 Mm



The "WHY" of FAFNIR PERFORMANCE

Working within the limits of a ball bearing, difference in design may be scarcely perceptible to the eye but difference in performance looms large. Fafnir's deep-groove design in which ball size and race depth are brought to the proper point for maximum performance offers vivid proof of one of the BIG little things that account for extra performance.

If you are planning to announce a new product or to resume production of an old one, take advantage of the plus performance offered by Fafnir's Balanced Design. The Fafnir Bearing Company, New Britain, Connecticut.



Unbalanced ring thickness reduces ball size - lessens life and capacity.



Fafnir Balanced Design. Race depth, ball size and ring thickness in proper balance for top performance.



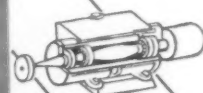
Unbalanced ball size leaves ring thickness insufficient for strength.

FOR Speeds up to 40,000 R.P.M.
Extreme Precision
Preloaded Duplex Pairs
Limits to .0001



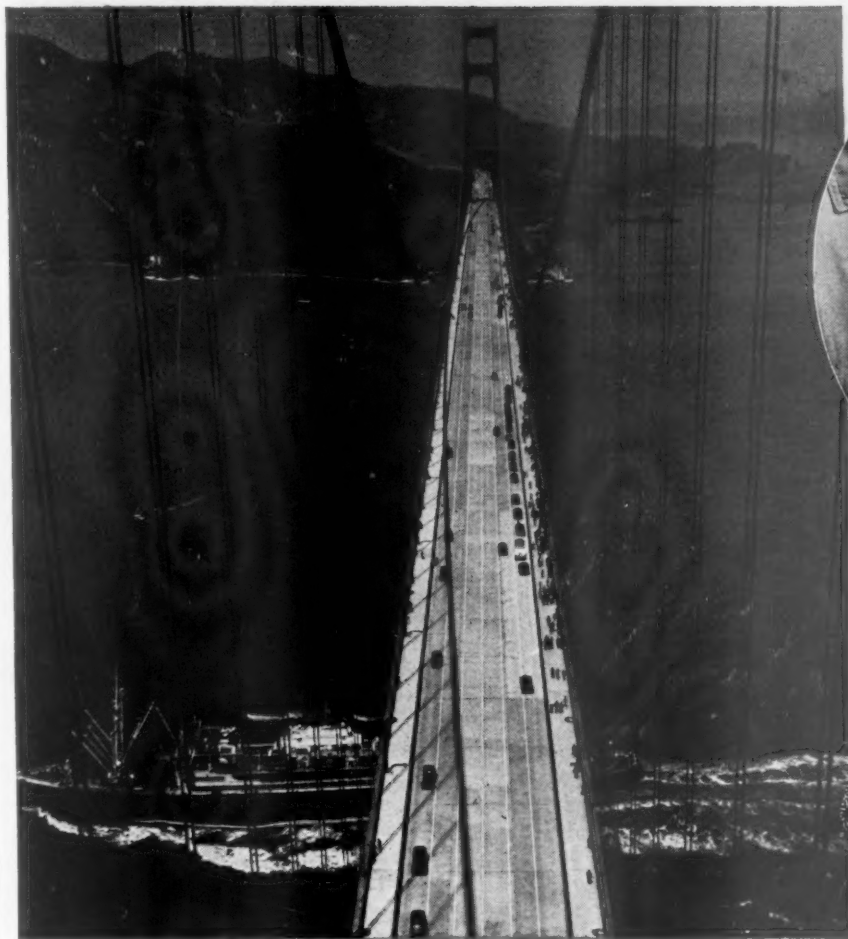
SELECT

**FAFNIR Mm 200 WIX Series
EXTREME PRECISION
BEARINGS**
Pairs supplied face to
face, back to back,
and tandem.
Bore Sizes:
12 Mm to 45 Mm



FAFNIR
BALL BEARINGS

BUY MORE WAR BONDS AND STAMPS



Lifting a bridge's face—with a brush

Osborn Brushes help maintain bridges and speed traffic over and under them

BRIDGES like this giant San Francisco span require continuous "face lifting"—to remove the rust that would otherwise corrode them. Crews of workers, using Osborn brushes, operate every day in the year—giving this great bridge, and others, a vitally necessary beauty treatment.

Not only do brushing wheels keep bridges in operating trim, but the traffic that passes over them—automobiles, buses, trucks—all have hundreds of parts which were deburred and finished with power brushing. Likewise the traffic that passes under bridges—merchant

ships and warships alike . . . are maintained with Osborn Brushing Wheels. And thousands of brushing operations were necessary *before they came down the ways!*

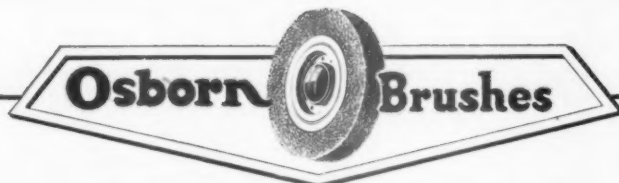
Brushing wheels as developed by Osborn, 50-year pioneer and leader in the field, have been *proven* under wartime stress—the best tools for all surface finishing work.

In developing your new products—whatever they are—it will pay you to consider the great versatility of Osborn brushes . . . to make your product perform better, look better, sell better.

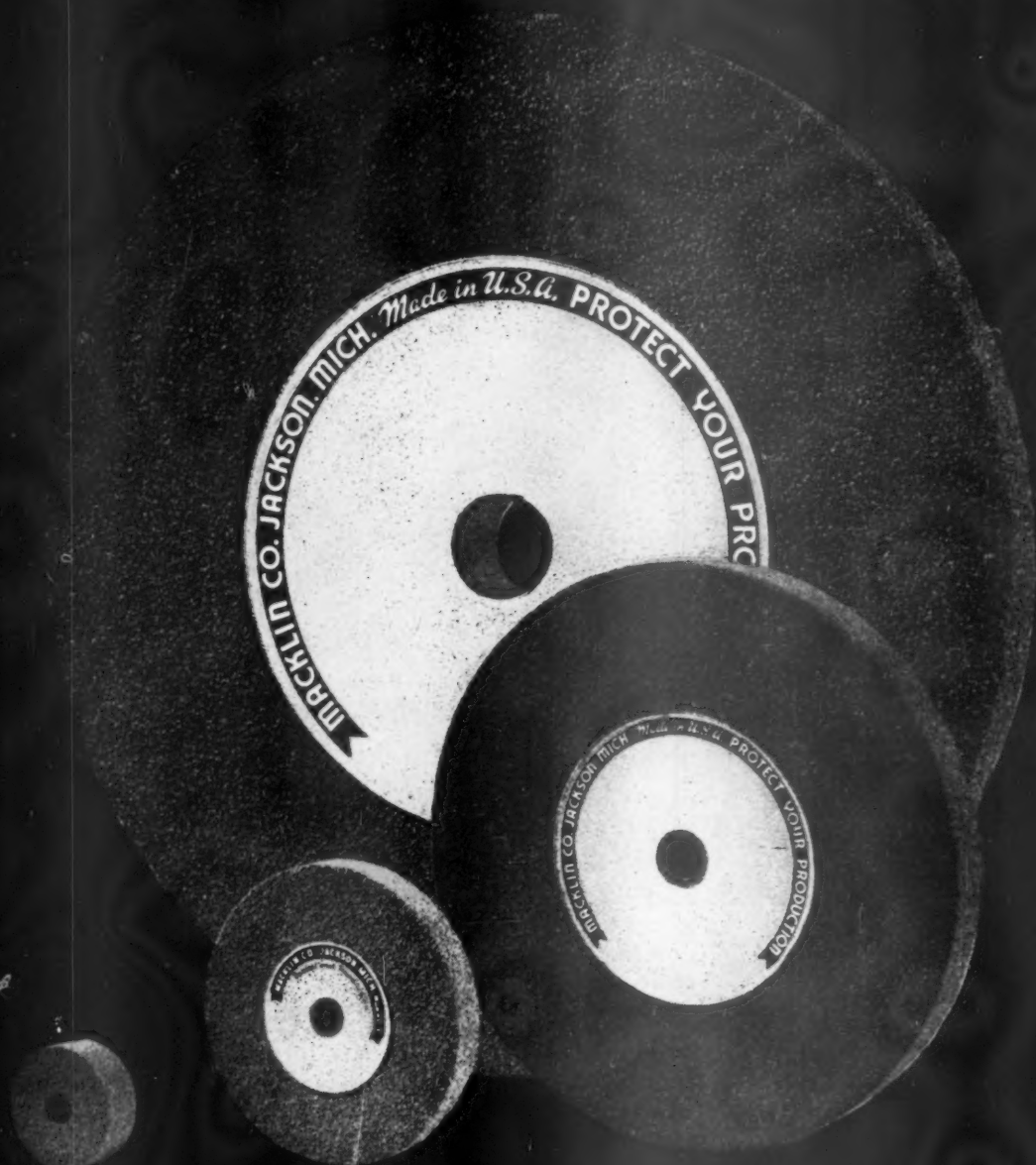
THE OSBORN MANUFACTURING COMPANY

5401 Hamilton Avenue

Cleveland, Ohio



WORLD'S LARGEST MANUFACTURER OF BRUSHES FOR INDUSTRY



MACKLIN GRINDING WHEELS.

"PROTECT YOUR PRODUCTION" with Macklin High Quality Wheels—made from the smallest to the largest—in all grains and grades, for every grinding purpose.

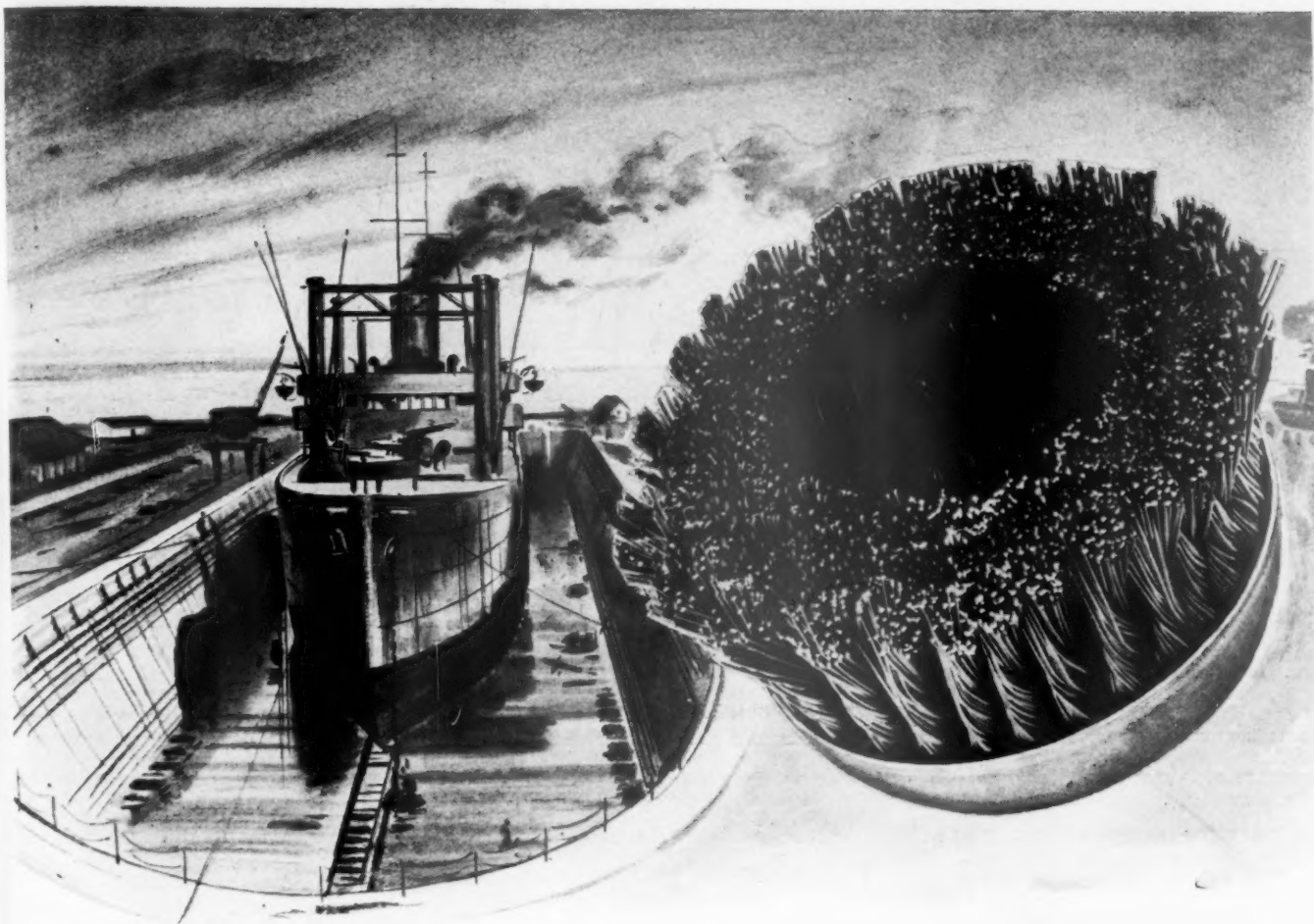
Ask for the services of a Macklin field engineer

MACKLIN COMPANY

Manufacturers of GRINDING WHEELS — JACKSON, MICHIGAN, U. S. A.

Distributors in all principal cities

Sales Offices: — Chicago — New York — Detroit — Pittsburgh — Cleveland — Cincinnati — Milwaukee — Philadelphia



Giving Barnacles the Brush-Off...

Brushing barnacles from the hull of an ocean-going vessel is no easy job. Today it's tougher than ever. Every 24 hours, more than 85 ships are dry-docked, scraped, brushed, painted, and sent on their way. That calls for fast working!

Several score men armed with scrapers, wire scrub brushes, and rotary wire brushes, swarm over a single hull—clean off every barnacle—every spot of rust and corrosion. *And how they do bear down on those brushes.* For speed is the big thing in this business.

That's why when a brush meets a barnacle, it's got to be *tough*. Has to be made of fine quality wire to help a brush do its job faster and wear longer.

So that brushes will wear down evenly and operate smoothly, leading brush manufacturers are exacting in their specifications—wire must be of uniform hardness, toughness, tensile strength, straightness, and diameter.

That's the kind of wire Worcester Wire Works has been drawing for many years—not only for brushing off barnacles, but for metal scale, rust, burrs—hundreds of important cleaning and polishing jobs.

To be sure you're securing the *best wire* especially developed for your requirements—be it brushes, rope, piano strings, staples, springs for precision instruments, for rubber reinforcing or any other application—consult Worcester Wire Works' research and engineering staff. Their experience will help solve your wire problems to improve the manufacture of your product or increase its serviceability and efficiency.

BUY WAR BONDS AND STAMPS



WORCESTER WIRE WORKS
Worcester, Mass.

ROUND STEEL WIRE, SMALL SIZES



Divisions of National-Standard Company

NATIONAL-STANDARD
Niles, Mich.

TIRE WIRE, FABRICATED
BRAIDS AND TAPE

ATHENIA STEEL
Clifton, N. J.

COLD ROLLED, HIGH CARBON
SPRING STEEL



WAGNER LITHO MACHINERY
Hoboken, N. J.

LITHOGRAPHING AND SPECIAL
MACHINERY

GET THIS

"Know-How" Information

USE COUPON BELOW

FOR YOUR PLANT

GET ACQUAINTED WITH PLASTICS
Here is another selection (Nos. 1 to 18) of printed matter that will help you to build a valuable reference file. (20 items appeared in the October issue.)

1. BAKELITE & VINYLITE PLASTICS

This booklet just off the press is termed a businessman's guide to both thermoplastic and thermosetting plastics. Its 24 pages list all of the products marketed by the Bakelite Corp. and the Plastics Division of Carbide and Carbon Chemicals Corp. It contains descriptions of molding and extrusion compounds, laminating plastics, sheets, sheeting, and film, rods and tubing, cast resins, glues and adhesives, bonding materials, coating products, impregnating, sealing and calendaring materials and special resins.

2. BAKELITE RESIN BAKING COATINGS

A new publication, 24 pages. It describes Bakelite resin baking finishes for use on all types of products and equipment ranging from vanity cases and ash trays to textile machinery, tanks and industrial equipment. These phenolic resin-solutions form insoluble, infusible glass-like organic finishes. Bakelite Corp.

3. ROHM & HAAS REPORTER—Published by the Rohm & Haas Company and its associate companies, the Resinous Products & Chemical Co. and Charles Lenig & Co. It contains practical articles on plastics and other products of these companies. You are invited to have your name placed on the mailing list that you may receive it regularly.

4. PLEXIGLAS, Plexiglas Mechanical Properties, and Plexiglas Fabricating Manual—These three Rohm & Haas booklets on Plexiglas Acrylic Plastic which is

outstanding in chemical resistance and stability against weathering and aging should be on your plastics list of must reading. Plexiglas is a colorless, transparent solid, and is also available in a number of colors both transparent and translucent. Light transmission value of clear plastic is 92%—as high as finest optical glass. Plastics Dept.

5. PLASKON—Booklet describes colorful Plaskon urea-formaldehyde and its properties, Plaskon melamine-formaldehyde and its properties, Plaskon resin glue and its uses for bonding wood, paper, fabrics, cork, compositions, etc., cold-setting resin glue, hot-setting resin glue, and low-pressure laminating resin, the latter developed especially for low-pressure molding of wood and fabric structures as in rubber-bag molding. Richly illustrated. Plaskon Divn., Libbey-Owens-Ford Glass Co.

6. V-BOARD—Booklet describes V-Board, a fabric reinforced thermosetting plastic of exceptional dimensional stability. It is comparable in strength to many metals, especially when its low specific gravity is considered, for it is far lighter than aluminum. It is capable of infinite variety in form and appearance. And, it can be worked with common tools. Simple bends and shapes, channels, etc. may be worked into the material by low heat application. United States Rubber Co.

7. PLASTICS BULLETIN—This is a DuPont bulletin published regularly that should be on your must-read list. It provides fresh information on new developments in the plastics field and will help you keep abreast of the times on DuPont research with Nylon, Plastacele, Lucite, Pyralin, Butacite and other plastic products. Plastics Dept.

8. DUPONT PLASTICS—This eight-page bulletin gives detailed information on DuPont plastics, their characteristics, general properties, and applications in military and commercial uses. E. I. duPont de Nemours & Co. Plastics Dept.

9. TEXTOLITE—This is the name of informative book published by the Plastics Division of General Electric Co. The listing of the properties of 28 grades of Textolite Molded, and 28 grades of Textolite Laminated, with information as to applications thereof is indicative of the widespread industrial and commercial uses of plastics. In addition it contains informative chapters on raw materials, designing and engineering, molding, industrial design, and other important phases of plastics uses.

10. SARAN Extruded Filaments—Color sample card carries 16 color samples of "Saran," "Saran Pipe," and "Saran Tubing" ranging from .012 to .050 in. which "are making possible revolutionary new designs and constructions in textiles and allied products". The woven fabrics are characterized by strength, extreme fatigue resistance and general durability, making them well adapted for upholstery in military vehicles, transportation seating, furniture, and even industrial filter cloths. Dow Chemical Co.

11. SARAN PLASTICS—Three folders, "Saran," "Saran Pipe," and "Saran Tubing." These tell about "Saran" pipe which was developed for chemical uses and wide variety of industrial applications; sizes range from 1/2" through 4" I.P.S.; weight, 1/4 that of comparable sizes of iron pipe. Properties are described, with information on fittings, and welding, threading and installing. Tubing diameters range from 1/8" to 3/4". It bends without kinking. Dow Chemical Co.

12. TENITE CASTING—Casting of a thermoplastic material for forming tools is described in new booklet, Tenite II Casting, just published by Tennessee Eastman Corporation. Plastic forming tools are preferred in many cases, it is said, because of their relatively low cost, time saving and lighter weight. Booklet gives detailed description of the procedure to be followed in casting Tenite II with specific reference to the casting of a drop-hammer punch.

13. SARAN PACKAGING—Three bulletins, namely "Saran Film", "Short Guide to Better Packaging", and "Saran Film (Type M) for Metal Protection", are available from Dow Chemical Company. Solving the moisture problem in packaging and how it is accomplished with Saran Film is described in these bulletins. The film is tough, transparent, and has high impenetrability to water vapor and other

(Continued on page 12)

PURCHASING

205 EAST 42ND ST., NEW YORK 17, N. Y.

Please send me the "Know-How" Information checked.

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐
11 ☐ 12 ☐ 13 ☐

NAME _____

COMPANY _____

ADDRESS _____

STATE _____

CITY _____

11/44

FOUR PAGES OF "KNOW HOW"—10-12-14-16

FOR SMOOTHING
— teeth have narrower spacing and longer angle here.

FOR FAST CUTTING
— teeth have wider spacing and shorter angle here.

IT SMOOTHS AS IT ROUGHS

ANNOUNCING THE NICHOLSON SUPER-SHEAR FILE

... a distinctively new "double-purpose" milled tooth file!

Note the unique design. The curved teeth are cut in an arc that is "off center" in relation to the axis of the file. This permits them to begin with wide gullets and virtually a right angle—for fast cutting. They become shorter and closer together as they terminate in a long, shearing angle (approximately 37°)—for producing the smoothing effect.

Thus, when a surface or edge is filed with an overlapping stroke in the usual right-toward-left working direction, the Nicholson Super-Shear File "smooths out its tracks as it goes." Practically two files in one! Longitudinal serrations, at 14°, not only serve to break up the filings and assist the file to clear itself of chips, but they help to overcome "chatter" and the tendency to "run off the work."

Where can you use the Nicholson Super-Shear File? Wherever milled (curved) tooth or shear (straight) tooth files are generally used: on the flat and convex surfaces of aluminum, brass, babbitt, bronze, copper, magnesium, cast iron and soft-metal alloys; on plastics, hard rubber and hardwood.

What are the advantages of the Nicholson Super-Shear File? Fast cutting and smooth finishing in one operation. Easy control of file for accurate work. Easy clearance that saves time and keeps file efficient when working on soft metals that clog ordinary files. Long-lasting quality and unwavering uniformity.

Consult your mill-supply house, or write us direct on the uses you believe you have for this unusual file as based on the brief description given here.

NICHOLSON FILE COMPANY • 28 ACORN STREET • PROVIDENCE 1, R. I., U. S. A.
(Also Canadian Plant, Port Hope, Ont.)

NICHOLSON FILES FOR EVERY PURPOSE

**NICHOLSON
U.S.A.
MADE IN U.S.A.**

"Know-How" Information, Continued

USE COUPON
ON EACH PAGE

gases. Stripcoat for hot melt dip for protecting metal products is described, as is Ethocel Sheeting, the rigid transparent packaging with smart sales appeal.

☐ **14. ROADMAPS To The Land of Plastics**—There are three of these booklets. They tell about Bakelite and Vinyl plastics. Booklet No. 1 deals with Mechanical Strength Factors; No. 2 covers Dimensional Stability; and No. 3 is on Hardness—Wear and Abrasion Resistance. Bakelite Corp.

☐ **15. CATALIN**—"The Fabrication of Catalin" is title of booklet in everyday English that tells about Catalin cast phenolics, their physical properties, how they are cast, machined and fabricated. You will find this booklet of special interest. Catalin Corporation.

☐ **16. GEON Resins & Plastics**—Geon is name of group of polyvinyl resins developed by Chemical Division of B. F. Goodrich Co., described in four-page bulletin. Compounded the resins lend themselves to molding, extruding, calendering, impregnating and film casting. B. F. Goodrich Co.

☐ **17. GEON LATEX**—Technical bulletin gives general properties and compounding information. It discusses the nature of Geon Latex, its stability, physical properties, compounding, etc. Chemical Division, B. F. Goodrich Co.

☐ **18. STYRON**—Styron is the name of a crystal clear polystyrene plastic made by Dow Chemical Company. It is a thermoplastic molding material with a wide range of usefulness. Physical characteristics, and chemical and electrical properties are described in detail.

☐ **19. PUNCTUATION, Forms of Address and Capitalization**—Small booklet issued by Horders, Inc. gives data on accepted usage of punctuation marks and other information as indicated.

☐ **20. ROTARY FILES**—Six-page folder and insert describe 72 rotary files of various shapes, both hand cut and ground from the solid. This is supplement to regular catalog and shows files company is permitted to make as regular items. Grobet File Co.

☐ **21. SPRINGS**—Wide variety of springs is illustrated and grouped according to type and design in catalog 44 issued by Reliable Spring & Wire Forms Co. Tables for figuring weight of springs and design chart are given. By use of this chart, number of coils and proper wire size can be found if necessary dimensions, load and travel distance are determined.

☐ **22. FUNGUS PROOFING**—Effects of fungus and corrosion on electrical equipment exposed to tropical conditions are said to be eliminated by use of chemicals, approved by the Army, Navy and Marine Corps, described in interesting brochure. Small percentages are claimed to be extraordinary potent, thus eliminating danger to humans. One group is especially designed for protection of phenolic parts, danger spots in electrical equipment. Specifications and instructions for applications given. Insl-x Co., Inc.

☐ **23. HEAT CONTROL**—Line of Weltronic "package unit" Heat Controls which provide dial-controlled infinitely variable phase-shift regulation of welding current is described in technical bulletin No. WTH-44. Models available for most resistance-welding processes including spot, butt, flash and forge welding. Weltronic Co.

☐ **24. HYDRAULIC PRESS**—A general utility vertical-horizontal press is described in bulletin No. 330-A published by Watson-Stillman Co. Easily converted by rotation of handwheel for either horizontal or vertical forcing, forming, straightening and bending operations, die sinking, etc. Operation by hand pump, small power pump or ram. Available in 60 or 100 ton capacity.

☐ **25. MAINTENANCE OF CONCRETE PAVEMENTS**—20 page catalog issued by Highways and Municipal Bureau of Portland Cement Association gives maintenance practices for concrete pavements at Army and Navy facilities. Detailed information is given on sealing of joints and cracks, replacements of broken areas or utility cuts, adjusting pavement to correct errors in original construction, and repair of spalls due to improper design or construction. Check No. 25 for your copy.

☐ **26. HEAT REFLECTANCE**—Technical pamphlet discusses advantages of protec-

tive coatings with heat reflectance properties. Graphs give relative reflectance values of different colors found in refractories and other heat resisting surfaces. White Hot is practical for temperatures up to 2840°F. while Pyro-Chrome (green in color) can withstand heat up to 4000°F. These two colors are said to have highest heat reflectance properties. Preferred Utilities Mfg. Corp.

☐ **27. CONTRACT TERMINATION**—Booklet issued by A. B. Dick Co. describes easy method of producing numerous papers required for contract settlements. Method is based on use of stencil duplicating equipment to eliminate re-writing of repetitive data, for use by prime and subcontractor. How many can you use?

☐ **28. WEAR RESISTING CASTINGS**—Four page bulletin discusses problems of wear from engineering standpoint. Hardness, impact, friction and other properties are considered in describing the different Meehanite castings. One type provides strengths up to 50,000 psi, and Brinells 196 to 321. Another has a 578 Brinell and tensile strength up to 45,000 psi. A number of applications are illustrated. Meehanite Research Institute of America.

☐ **29. REFRIGERATION PRODUCTS**—Catalog describes line of refrigeration and air conditioning valves, fittings, service tools, dehydrators, and allied items. Among items detailed are torpedo dehydrators and filters, tube cutters and benders, charging lines, soldering appliances. Imperial Brass Mfg. Co.

☐ **30. TIMING DEVICES**—A simplified, electrical timing device which when employed with any automatic control instrument having high and low contact with a neutral position, maintains desired input of electrical power, heat, or flow of liquid or gases to any process equipment is described in bulletins J403-2 (automatic type) and J402-2 (manual type). Wheelco Instruments Co.

☐ **31. INDUSTRIAL RUBBER**—General booklet which discusses line of Vibro-Insulators, devices of rubber and methal which reduce vibration, products made with Koroseal, rubber lined tanks and valves among other items has been issued by the B. F. Goodrich Co. Applications and diagrams explain various uses and advantages of products.

☐ **32. FOR AERONAUTICS INDUSTRY**—Catalog of adhesives, coatings, primers, sealing compounds. It describes and lists the properties of both the vulcanizing and non-vulcanizing types of cements made from rubber and other materials, gives typical services, and general information and similar information for the other materials. 21 non-vulcanizing and 19 vulcanizing cements are listed. B. F. Goodrich Co.

☐ **33. DEOXIDIZED STEEL PIPE**—Bulletin describes deoxidized bessemer steel seamless pipe which is said to have the qualities of greater stiffness, higher working stresses, better welding qualities, longer life, greater resistance to creep, good machining qualities, and to have ductility (Continued on page 14)

PURCHASING

205 EAST 42ND ST., NEW YORK 17, N. Y.

Please send me the "Know-How" Information checked.

14 ☐ 15 ☐ 16 ☐ 17 ☐ 18 ☐ 19 ☐ 20 ☐ 21 ☐ 22 ☐ 23 ☐
24 ☐ 25 ☐ 26 ☐ 27 ☐ 28 ☐ 29 ☐ 30 ☐ 31 ☐ 32 ☐ 33 ☐

NAME _____

COMPANY _____

ADDRESS _____

CITY _____

STATE _____

11/44

FOUR PAGES OF "KNOW HOW"—10-12-14-16

260-5200
RPM



70-5300
SFM



160-6200
RPM



GET THE *Correct* CUTTING SPEED WITH WALKER-TURNER MACHINE TOOLS!



Every material — every operation — has its proper speed . . . the speed at which machining is done most accurately, most economically, most efficiently.

Walker-Turner Machine Tools — because of their exceptionally wide ranges of cutting speeds — enable production men to hit the correct speed "on the button"! This gives Walker-Turner Machine Tools versatility for handling all materials in all types of operations . . . from every-day production to complicated, special tooling set-ups. These qualities may prove the answer to your own problems. Write for our catalog today!

WALKER-TURNER CO., Inc., Plainfield, N. J.

Walker-Turner

Machine Tools Offer These Advantages:

- Versatility
- Rugged construction
- Safe, simplified operation
- Low power consumption
- Low capital investment
- Low operating and maintenance cost

RADIAL DRILL — Drills to center of 62" circle. Head tilts 45° right or left. Maximum distance nose of chuck to table, 13½". Spindle traverse, 3¾". Chuck capacity, ½".

METAL-CUTTING BAND SAW — 14" and 16" models. Geared speed reducer. Table tilts to 45° and has mitre gauge groove. Blade tensioning device has spring cushions to absorb shocks.

20-INCH DRILL PRESS — Hand or power feed. Bench or floor, single or multi-spindle models. Drills to center of 20" circle. Feed 6". Capacity 1" in cast iron, ¾" in steel.



MACHINE TOOLS

DRILL PRESSES — HAND AND POWER FEED • RADIAL DRILLS
METAL-CUTTING BAND SAWS • POLISHING LATHES • FLEXIBLE SHAFT MACHINES
RADIAL CUT-OFF MACHINES FOR METAL • MOTORS • BELT & DISC SURFACERS

"Know-How" Information, Continued

USE COUPON
ON EACH PAGE

and toughness fully equal to those of steel of the same hardness and tensile strength. National Tube Co.

34. FORGEABILITY OF STEELS—New 78-page book available from The Timken Roller Bearing Company's Steel and Tube Division, contains recommended forging temperatures of 68 steels as determined by the hot twist test. Apparatus and procedures used are described and the results of tests on various steels interpreted.

35. POST-WAR PACKAGING—Booklet designed to acquaint industry with Kimpak which is said to save packaging time, reduces need of other materials, cushions against shock and protects against abrasion. Various types and numerous applications illustrated. Kimberly-Clark Corp.

36. BALL BEARINGS—New Departure, division of General Motors Corporation, presents in four page folder a seal which is adapted to wider range of operating conditions and is said to increase length of service, a new method for revitalizing lubricant, and a new series of self-sealed ball bearings.

37. PLASTIC COATINGS—Illustrated catalog describes plastic coatings which may be used in many industries. It shows how organic and inorganic materials, foods, beverages, and equipment is being protected against corrosion and contamination. Amercoat Div., American Pipe and Construction Co.

38. CARBIDE TOOLS—Descriptions of characteristics of various grades of Tamaloy carbide tipped cutting tools, dies and accessories and suggestions for their applications are given in 8-page catalog T44. Diagrams and specifications are helpful data included. Tungsten Alloy Manufacturing Co.

39. WORM REDUCERS—Description of fan cooled worm gear reduction unit in illustrated brochure points out how high velocity air stream is held on directed course by double wall housing and how heat-dissipating surface is nearly doubled by cast fins on outer wall of housing. This is said to produce twice the horse-

power capacity obtainable from standard reducers of equal size. Cleveland Worm & Gear Co.

40. PREFORMED WIRE ROPE—Clever brochure issued by Preformed Wire Rope Information Bureau explains uses and applications of product and need for more specific information after survey showed that 25% of people interviewed were ignorant of product, and these included P.A.'s. Ask for No. 40 and quiz yourself.

41. TUBING PRESSURES—Bulletin 112 gives tables of bursting pressures of Seamless Steel Tubing from 1/8" to 9 3/4" OD. Figures are based on Barlow's formula. An important book for users of this type of tubing. Globe Steel Tubes Co.

42. PRECISION LOFTING—New principle of design, engineering and production, called Precision Lofting with Template Reproductions is discussed in interesting brochure. From full-sized drawing, multiple copies can be made on any surface, accurate in detail and dimension. Exactly how it is handled, and its application by industry is fully explained. Template Reproduction Co.

43. SHOT PEENING—Study titled "Shot Peening and the Fatigue of Metals" has been issued by American Foundry Equipment Co. Result of much research by Prof. H. F. Moore, University of Illinois, it shows how shot peening increases resistance to plastic distortion, gives examples of increased fatigue life from shot peening, and discusses other factors of structural damage to metals. Microphotographs, charts, and tables highlight discussion.

44. STEELSTRAPS—Vest pocket size data book shows how on every type of shipping pack—boxes, bales, rolls, skids—the steel strap can be used with effectiveness. Strap applying tools are also illustrated and tips for maintenance given. Over 70 applications of these reinforcements are suggested. Acme Steel Co.

45. JACKS—Wide variety of jacks—cable, reel, trip, industrial hydraulic, etc.—is described in catalog No. 44. Illustrations included. Handy reference for buyers. Templeton, Kenly & Co.

46. PROTECTIVE CREAMS—Two hand creams for use in wet and dry work are described in four page folder put out by B. F. Goodrich. No claims are made in regard to its prevention of dermatitis, but tests indicate that it prevents skin irritants from entering skin pores. Conditions under which each can be used more effectively are listed.

47. PLATING—Complete small size plating unit, portable and operative on 110 ac circuit, is presented in leaflet. Measures 16 1/2" across top, 14" depth, and has capacity of 1/2 peck. Complete specifications given. Udylyte Corp.

48. GRINDER—Machine for precision production of profiles direct from drawing is described in 16-page brochure. The Micro-Form Grinder consists of universal grinding machine, pantograph, table, and microscope. Savings in time and cost claimed for it. Other advantages are outlined and illustrated. Sheffield Corp.

49. TRUCKS and TRAILERS—Many special as well as standard items in its line of warehouse trucks, trailers, dollies, etc. are listed in 56 page catalog issued by the Howe Scale Co. Indexed alphabetically by content, and by code number, the brochure is illustrated and lists complete specifications for each product.

50. TOOL FORMING—An attachment designed to support tools to be formed on a tool and cutter without first forming the wheel is presented in illustrated brochure issued by W. F. Meyers Co., Inc. Intricate grinding is said to be accomplished to micro-inch finish while accurately controlling predetermined angles on many tools. It is claimed that a tool bit requiring hours to grind to template can be fashioned to mechanical precision in 30 minutes. Illustrated instructions are given.

51. CONDUITS—Piping for underground and overhead, prefabricated to definite specifications, is described in pamphlet. Speed of installation, light weight, ample strength are among advantages claimed for it. Included are capacity tables, trench dimensions and general specifications—all of which make it valuable handbook for those with conduit problems. Ric-will Co.

52. GRINDING WITH OIL—Vest pocket size booklet discusses benefits of grinding with oil, importance of selecting right lubrications for various precision grinding operations, and tips for handling these oils. How many can you use around the plant? D. A. Stuart Oil Co.

53. PROCESS EQUIPMENT—First complete line of process equipment of H. K. Porter Co., Inc. and its two divisions is offered in catalog. In addition to standard products—agitators, kettles, dryers, centrifugal pumps—there are recently developed products described. Engineering drawings and details of the operating principles add to the book's value.

54. TAP MANUAL—Reference guide for use in machine shops where taps are used in production or maintenance work contains notes on proper selection of taps, recommended speeds, lubricants and in-

(Continued on page 16)

PURCHASING

205 EAST 42ND ST., NEW YORK 17, N. Y.

Please send me the "Know-How" Information checked.

34 ☐ 35 ☐ 36 ☐ 37 ☐ 38 ☐ 39 ☐ 40 ☐ 41 ☐ 42 ☐ 43 ☐
44 ☐ 45 ☐ 46 ☐ 47 ☐ 48 ☐ 49 ☐ 50 ☐ 51 ☐ 52 ☐ 53 ☐
54 ☐

NAME _____

COMPANY _____

ADDRESS _____

CITY _____

STATE _____

11/44

FOUR PAGES OF "KNOW HOW"—10-12-14-18

A scientific development that costs you no more

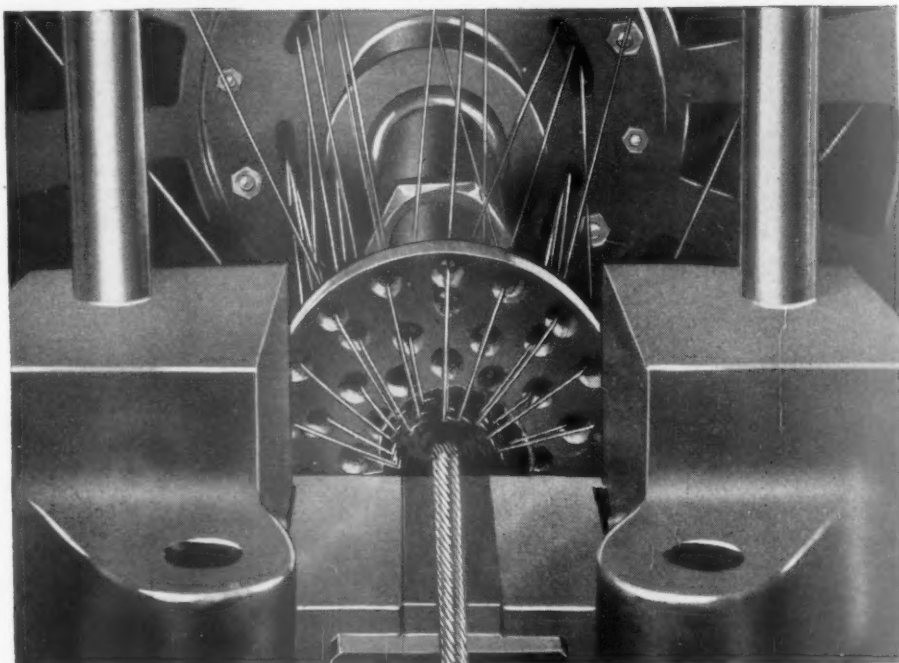
IT'S THE *internal lubrication* IN MACWHYTE PREformed WIRE ROPE

In Macwhyte PREformed Wire Rope, Internal Lubrication increases the life of the rope, thereby reducing operating costs.

A special-formula lubricant made to Macwhyte specifications is forced to the wires as they are being closed into the strand.

Macwhyte Internal Lubricant improves the sliding action of the wires as they move in bending around sheaves and drums. In many cases the inside wires are in good condition after the outside wires are seriously worn.

Operators of equipment prefer Macwhyte PREformed Wire Rope because it operates so smoothly and spools on the drum so well.



The above illustration shows how internal lubrication is applied to Macwhyte PREformed ropes. (Top of stranding die is removed.) Note the wires pass through the lubricant which is pumped up from below and therefore each wire is completely covered and all spaces between the wires in the strand completely filled.



Macwhyte Wire Rope Lubricant is packed around each wire in all strands of Macwhyte Wire Rope.

If you have a service problem, Macwhyte Wire Rope engineers stand ready to give you the benefit of their experience in selecting the proper size, grade, and construction.

The demands of our armed ser-

vices are so great now, there may be times when we cannot give you our usual prompt service and delivery. The situation changes from day to day so please keep trying to get Macwhyte Wire Rope. We'll serve you if we possibly can.

Rope Conservation Bulletins

18 illustrated articles on the use and care of Wire Rope have been bound into an 8½" x 11" book which is available free to Wire Rope users requesting it on their company letterhead. Ask for Bulletins No. 43-85.

MACWHYTE *Plus*
PREformed *Internal Lubrication*
WIRE ROPE *Selected Steels*
Tested-Proved

The correct rope for your equipment

NO. 758

MACWHYTE COMPANY

Wire Rope

Manufacturers



2918 FOURTEENTH AVENUE

KENOSHA, WISCONSIN

Mill Depots: New York • Pittsburgh • Chicago • Fort Worth • Portland • Seattle • San Francisco. Distributors throughout the U.S.A.

MACWHYTE PREformed and
Internally Lubricated Wire Rope

MONARCH WHYTE STRAND Wire Rope

MACWHYTE Special Traction Elevator Rope

MACWHYTE Stainless Steel Wire Rope

MACWHYTE Braided Wire Rope Slings

MACWHYTE Aircraft Cables and Tie-Rods

MACWHYTE Monel Metal Wire Rope

"Know-How" Information, Continued

USE COUPON
ON EACH PAGE

formation on tap usage and sharpening. How many can you use in your plant? Charles H. Besly & Co.

☐ **55. LIFT TRUCKS**—Hydraulic high-lift truck with a variety of uses is described in folder. For exact leveling, placing tote boxes, setting heavy work in lathes, the truck operated by one man is claimed to be sufficient. It has an elevated height of 48", platform 24" x 30". Lyon-Raymond Corp.

☐ **56. DUST COLLECTOR**—Catalog of individual type self-contained dust collectors for collecting dust from all sizes of surface, tool, pedestal, disc grinders has been issued by Agat-Detroit Co. Arranged so that by referring to index for source of dust, the suitable dust collector will be found. Dimensions, and specification tables are included.

☐ **57. GRINDING MANUAL**—Grinding wheel users will find newly announced standard markings for bonded abrasives in booklet called "Grinding Facts." In addition, a comprehensive schedule of grading recommendations for various types of grinding, safety rules, and table of speeds are included in this 136 page handbook. Carborundum Co.

☐ **58. DIE DUPLICATORS**—Duplicators to be used on dies and molds for all types of materials as well as applied to production profiling are described in bulletin 1319-E. Can be used for drop forging dies and metal patterns. George Gorton Machine Co.

☐ **59. ACID PROOF CEMENT**—Sulphur base cement which is plasticized with synthetic rubber is described in brochure issued by Atlas Mineral Products Co. Its minimum compressive strength is 6000 psi, and tensile strength 600 psi. Can be used for protection of steel tanks, floors, drains, manholes, towers, etc.

☐ **60. METAL QUALITY**—You will find this worth reading. It tells how hot working improves the properties of metal, beginning with the progressive hot working of steel in the rolling mills. In not-too-technical language and also by means of more than

200 halftones and diagrams it gives a clear understanding of how steel gains in strength and toughness, step by step from ingot to finished forging. Drop Forging Association.

☐ **61. OILITE BEARINGS & PARTS**—168-page catalog covers Oilite Powdered Metal Products. In addition to Engineering Section, and several pages on parts made from metal powders, the major part of the book is made of size lists for Oilite Bronze Bearings, Super-Oilite Bearings, Iron Oilite Bearings, and Cored, Bar, Strip and Plate Stock. Also described are Aluminum Oilite bearings made from powdered aluminum and machine parts produced from a wide range of metal powders. Chrysler Corporation, Amplex Division.

☐ **62. BUFFER TABLET**—Sample of 5.00 pH Coleman buffer tablet, which has a pH of exactly 5.00 pH when diluted in 100 ml. of warm distilled water, and circular describing certified buffer tablets, are available from Burrell Technical Supply Co.

☐ **63. VALVE POSITIONER**—Bulletin J602-2 describes new Throttletrol developed by Wheelco Instruments Co., which is described as a simplified valve positioning device to be used in conjunction with any control instrument having a high and low contact with a neutral position.

☐ **64. BROACHING MACHINES**—Bulletin VDS-44 describes Colonial Pull-Up Broaching machines, tools and attachments. Machines are said to provide high production capacity while reducing floor space requirements. These pull-up machines are used primarily for the internal broaching of rounds, splines, squares, gear teeth, etc. Pictorial spread shows the machine at work on a variety of spreads. Colonial Broach Co.

☐ **65. PRIME PUMPS**—Rex Speed Prime Pumps are described in new Bulletin No. 447. These are general purpose self-priming centrifugal pumps designed to fit a wide range of pumping needs. Pumps can be used for general dewatering service, for oil field use, irrigation pumps, fire and bilge pumps, and general utility work. Chain Belt Co.

☐ **66. PLATING MACHINE**—Fully automatic plating machine which is shipped complete on one car ready to set on your floor and start operating, is described in four-page bulletin. Manufacturer states that its compact size makes its use as part of regular production line practical. Overall length 35 ft.; width 6 ft.; height 9½ ft. The Udylite Corp.

☐ **67. MOBILE CANTEENS**—Catalog describes and illustrates eight basic models in Mobile Canteens for in-plant feeding. An entire page is devoted to each model. Models are of various capacities equipped to serve up to 450 persons. S. Blickman, Inc.

☐ **68. CARBIDE TIPPED TOOLS**—Jessop's Malta line for the high speed machining of all types of steel, cast iron, non-ferrous materials, and non-metallic materials are described in new 8-page bulletin. Jessop Steel Co.

☐ **69. TRANSFORMERS**—Bulletin GEA 4193, sixteen pages, is a "Summary of Safety and Savings with All-Purpose Pyranol Transformers." As they will not burn, they may be installed indoors without fire-proof vault construction. They can be installed in out-of-the-way places, and installation is said to be fast, easy and inexpensive. Maintenance costs are reduced. General Electric Co.

☐ **70. CERAMICS**—Four page bulletin No. 650-A covers Extrusion Presses, Cold Molding Presses and Preform Presses. Extrusion presses are especially adapted to the production of tubes and solids from steatite and other ceramics. Capacities range from 45 to 225 tons. Down-acting cold-molding presses include capacities from 10-100 tons in models for any type of molding using steatite or other ceramics as the material base. Watson-Stillman Co.

☐ **71. WORM GEAR SPEED REDUCERS**—"Complete Data Book on Worm Gear Speed Reducers for Industrial Applications" is the title of a new Book No. 1824, now available from the Link-Belt Company. It is a book of 100 pages, replete with photographs, dimensional line drawings, engineering data, and other data all aimed at helping the buyer to make selection of the type and size of reducer required for a specific service. Eight pages are devoted to the subject of Worm Gear Reducer Selection.

☐ **72. SKID LOAD PROCESS**—How the Acme Skid-Load Process makes for money savings and safe delivery of products, is pictorially told in eight-page bulletin, which shows the skid-loading of such things as automobile bumpers, clutches, rear axles, and numerous other products. One manufacturer benefitted by a 46% saving in cost and a reduction of 95 pounds in tare. Acme Steel Co.

☐ **73. PLATING RACK COATINGS**—New catalog section on Koroseal Tape RX and Korolac RX, a solution of Koroseal, easy-to-apply protective coatings for plating racks has been issued by the B. F. Goodrich Co. Products were specially designed for plating rack service, with application by the user and can be applied either separately or together.

PURCHASING

205 EAST 42ND ST., NEW YORK 17, N. Y.

Please send me the "Know-How" Information checked.

55 ☐ 56 ☐ 57 ☐ 58 ☐ 59 ☐ 60 ☐ 61 ☐ 62 ☐ 63 ☐ 64 ☐
65 ☐ 66 ☐ 67 ☐ 68 ☐ 69 ☐ 70 ☐ 71 ☐ 72 ☐ 73 ☐

NAME _____

COMPANY _____

ADDRESS _____

CITY _____

STATE _____

11/44

FOUR PAGES OF "KNOW HOW"—10-12-14-16

MAKE ANY DRILLING JOB in any position EASIER with this *Pressure Handle* on a **SKILSAW DRILL!**



• Now you can drill with *extra ease and extra safety* in any position . . . head-high, overhead or on ladders . . . by simply attaching this Pressure Handle to your SKILSAW DRILL or any make of drill. Pressure Handle gives the operator complete control of drilling pressure at all times . . . eliminates twist drill breakage . . . saves the time of an extra man with ropes or chains to hold the drill.

Fits SKILSAW DRILL Models "64", "80", "82", "83", "101", "103", "121", "123", "141", "143", and all other makes of electric or pneumatic drills of from $\frac{3}{8}$ in. to 1 in. capacity in steel.

**Sold Nationally Through
Skilsaw Distributors for \$30.**

Ask your distributor today for a demonstration of this Pressure Handle on your own work.

SKILSAW, INC.
5033-43 Elston Avenue, Chicago 30, Ill.
Sales and Service Branches in All Principal Cities



DOSE OF SALT



Encrusted with chemical salts, this Tri-Clad motor continues to drive a pump without breakdown of its insulation. In almost every industrial plant, motors are called upon to keep going under conditions which try their endurance to the limit. It may be in a plating room, or on an exhaust fan, or in a wet sub-cellar, or — as in this case — in connection with chemical processing. In emergencies, open motors may face conditions for which good engineering practice would require totally enclosed construction — conditions which tend to corrode the frame and attack the insulation. Endurance of Tri-Clad motors under such conditions results from tests like the one described below.

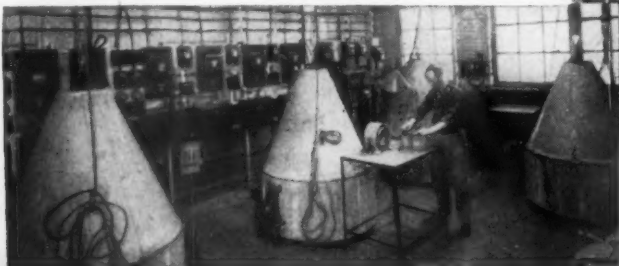
Salt-spray test of **TRI/CLAD** motors gives assurance of long life in severe service

IN this accelerated life test to determine the ultimate endurance of their insulation, the motors are operated to failure under one of the worst possible combinations of conditions. They are continually exposed to a 2% salt-water spray, while operating on a duty cycle of 3 minutes on and 37 minutes off. (These repeated voltage surges impose greater stress on the insulation than would continuous operation.) Tests are run on all new insulations developed, and as a production check on motors taken at random off the assembly lines. Because of their endurance under this severe test, among others, Formex* wire and Glyptal* bonding material were chosen for Tri-Clad insulation.

*Reg. U. S. Pat. Off.



Left: Conical hoods cover the tanks in which these salt-spray tests are conducted.



GENERAL  ELECTRIC

Every week 192,000 G-E employees purchase more than a million dollars' worth of War Bonds.

TRI/CLAD
REG. U. S. PAT. OFF.
MOTORS

The "DOUBLE E" Drive— —for "ECONOMY" —for "EFFICIENCY"



Silverstreak Economy Begins When Installed

Silverstreak Silent Chain Drives are low in first cost (often lower than V Belts). Their annual cost is always less.

Silverstreak Silent Chain Drives cannot slip—cannot waste horsepower.

Silverstreak Silent Chain Drives cost practically nothing for upkeep—run 10, 20 or more years without attention beyond occasional oiling.

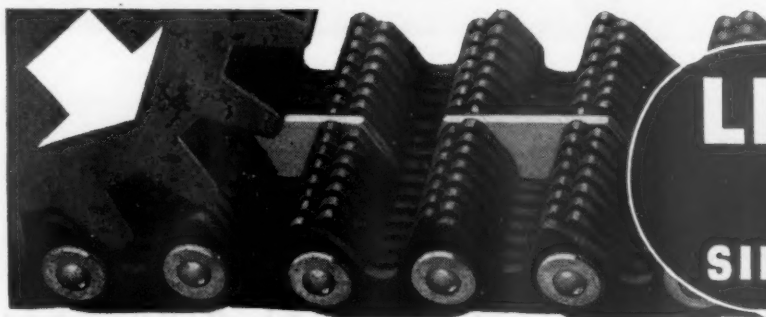
Silverstreak Efficiency Continues Indefinitely

Teeth, not tension; positive metal to metal contact, not friction, is the reason for the high efficiency of Link-Belt Silverstreak Silent Chain Drives.

98.2% efficiency is maintained through the long life of the drive. Unaffected by temperature, humidity, and presence of oil is an advantage rather than otherwise. They do not deteriorate when temporarily idle.

LINK-BELT COMPANY Indianapolis 6, Chicago 9, Philadelphia 40, Atlanta, Dallas 1, Minneapolis 5, San Francisco 24, Toronto 8. Offices, factory branch stores and distributors in principal cities.

Remember, it's teeth NOT tension that gives Silverstreak Silent Chain its outstanding Efficiency and Economy!



LINK-BELT
Silverstreak
SILENT CHAIN DRIVE



RUST-

RUST PREVENTION

WITH TEXACO RUSTPROOF

FREE! This 36-page booklet tells how Texaco Rustproof Compound prevents rust, where and how to apply it, and why it is so successful. Every industrial executive and engineer should have a copy. A single suggestion in this booklet may save thousands of dollars. Send for your copy today!




TEXACO

TUNE IN THE TEXACO STAR THEATRE EVERY SUNDAY NIGHT—CBS

PROOFING

A RECONVERSION REQUIREMENT..



IMPORTANT in any plan for smooth, speedy reconversion to peacetime production is protection of unused equipment against destructive RUST. Government-owned equipment, according to official specifications, must be rustproofed with minimum delay after "shut-down". And if the equipment is your own, you will likewise wish to protect it fully until it is disposed of or put back in use.

In either case, you will find *Texaco Rustproof Compound* and other Texaco rust preventives *thoroughly effective*—for weeks or years—in protecting costly machines, precision tools, and other production equipment. These tested-in-use products meet Government specifications for *exterior* or *interior* application.

Easily applied with brush or spray gun, *Texaco Rustproof Compound* provides a penetrating, self-sealing film which is not only waterproof but also resistant to chemicals and fumes. It remains plastic, healing over any scratches and abrasions. It is long-lasting and extremely economical.

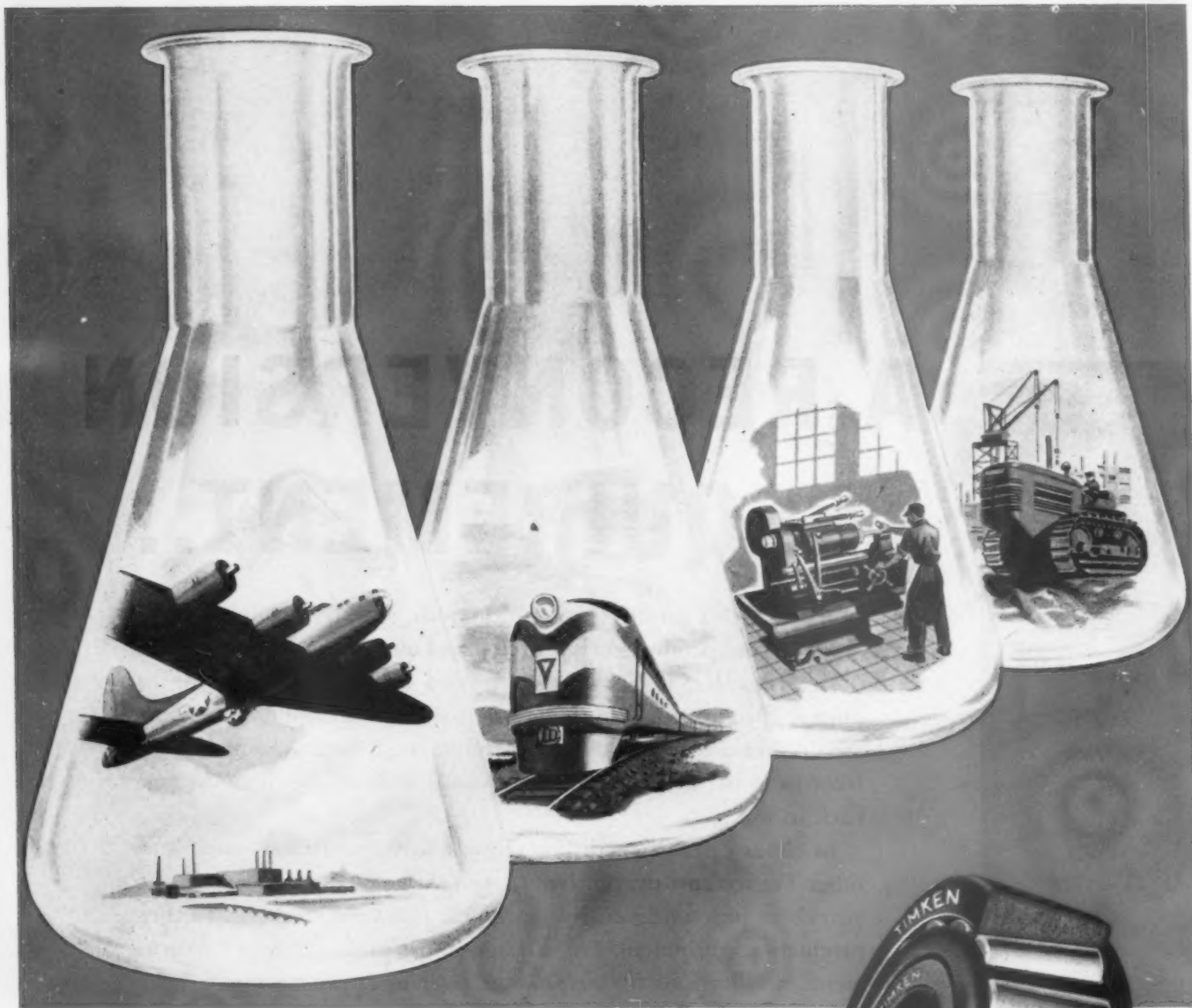
Texaco Rustproof Compound has proved highly successful in protecting all types of parts and equipment from weather and salt water in overseas shipments.

No matter what your rustproofing requirements—exterior or interior—there is a suitable Texaco rustproofing product to meet your needs, available to you through more than 2300 Texaco distributing points in the 48 States. *Order NOW!*

The Texas Company, 135 East 42nd Street, New York 17, N. Y.

Rustproofing Products

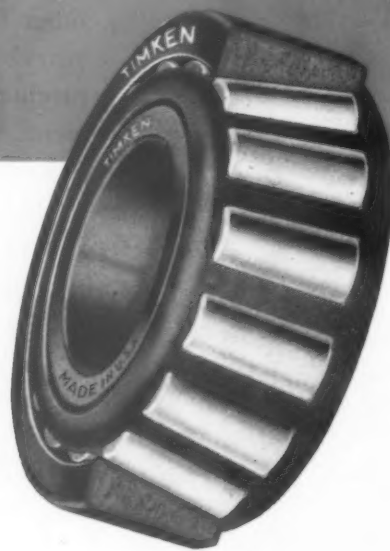
HELP WIN THE WAR BY RETURNING EMPTY DRUMS PROMPTLY



Pioneers in all industrial fields

When America was faced with the great task of producing a huge war machine, Timken Bearings were required and demanded in unprecedented quantities by every industry. When sober appraisal is applied to the selection of bearings, Timken Tapered Roller Bearings are invariably the choice. Timken Bearings are used in all industrial fields. This is because of correct design; the superiority of Timken Alloy Steel; constant engineering research; and broad application experience.

THE TIMKEN ROLLER BEARING COMPANY, CANTON 6, OHIO
*Timken Bearings, Timken Alloy Steels and Tubing
 and Timken Removable Rock Bits*



TIMKEN
TRADE-MARK REG. U. S. PAT. OFF.
TAPERED ROLLER BEARINGS



BUY WAR BONDS



Why do this?



Or this?

whenever you have a brass problem...

IT may be about the characteristics of some copper alloy . . . or it may be a shipment of brass you have to have. Whatever your purchasing problem, a phone call to a Chase Warehouse or Sales Office will save you time and, perhaps, costly production delay.

For, like all Chase offices, the one near you is equipped to render, in your own locality, a complete sales service—

sound advice on everyday problems of copper and copper base alloys . . . on special problems the research facilities of a nationwide mill organization . . . and fast delivery from stock at any one of 19 warehouses.

Wherever you are, you have only to call your nearest Chase Warehouse or Sales Office for "main office" service in brass. There's satisfaction in that kind of war call.



Remember—CHASE SERVICE IS AS CLOSE AS YOUR PHONE



CHASE BRASS & COPPER CO.

—Incorporated—
Waterbury, Connecticut

SUBSIDIARY OF KENNECOTT COPPER CORPORATION

ALBANY †
ATLANTA †
BALTIMORE
BOSTON
CHICAGO

CINCINNATI
CLEVELAND
DETROIT
HOUSTON

INDIANAPOLIS †
KANSAS CITY, MO. †
LOS ANGELES
MILWAUKEE



MINNEAPOLIS
NEWARK
NEW ORLEANS
NEW YORK

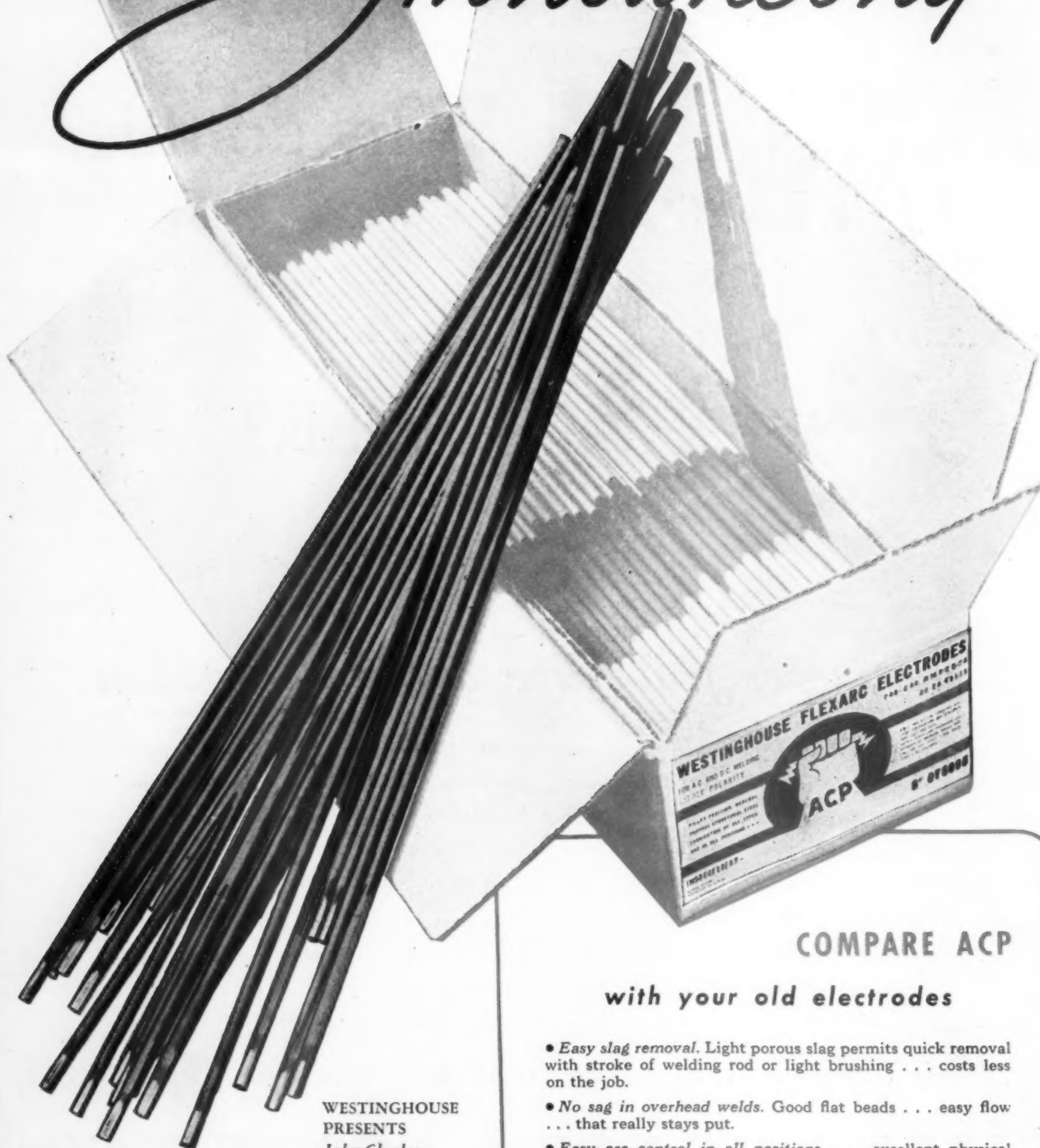
PHILADELPHIA
PITTSBURGH
PROVIDENCE
ROCHESTER †

SAN FRANCISCO
SEATTLE
ST. LOUIS
WASHINGTON †

This is the Chase Network—handiest way to buy brass

† Indicates Sales Office Only

Announcing



WESTINGHOUSE
PRESENTS
*John Charles
Thomas*



SUN. 2:30 EWT., NBC.
"Top of the Evening"
MON. WED. FRI. 10:15
EWT., BLUE NET.

COMPARE ACP

with your old electrodes

- **Easy slag removal.** Light porous slag permits quick removal with stroke of welding rod or light brushing . . . costs less on the job.
- **No sag in overhead welds.** Good flat beads . . . easy flow . . . that really stays put.
- **Easy arc control in all positions** . . . excellent physical properties.
- **Forceful direct arc** plus excellent metal transfer gives high penetration with complete fusion and easy manipulation.
- **High speed, high burnoff rate.**
- **All positions, both a-c and d-c** . . . welds are of highest ductility, impact resistance and x-ray quality.
- **Seven popular sizes:** diameters from 3/32" to 5/16".

the new ACP electrode

... FOR SPEED WELDING IN ALL POSITIONS
WITH A-C AND D-C REVERSE POLARITY

One of the most important welding developments in the past ten years... it's the new ACP welding rod... engineered and produced to meet the operator's demands of today and postwar for versatile performance and ease of handling. This new Westinghouse electrode simplifies slag removal... steps up production and quality welds in all positions.

Flexarc ACP Electrodes form a *light, porous slag* which is easily removed from each pass by light brushing. Delays to allow weld to cool for heavy brushing are eliminated. Operators will immediately sense a drive and penetration equal to, or better than, that obtained with direct current and corresponding all-position, direct-current electrodes.

ACP electrodes are especially suited for shipyard, piping and heavy fabrication work. Complete information, including application data, physical properties, and current ranges, is featured in the new ACP electrode Booklet, B-3353. Learn more about ACP... write today for your copy. Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pa., Dept. 7-N.

J-21310



WESTINGHOUSE FLEXARC ELECTRODES AVAILABLE FOR PROMPT DELIVERY

- ACP—AWS—Class E-6010-11... for high-quality work on mild steels that are not readily positioned, a-c and d-c reverse polarity.
- AP... Class E-6010... for speed welding in all positions with d-c reverse polarity.
- SW... Class E-6012-13... for low-current all-position welding on mild steels... particularly adapted for welding light gauge steel.
- FP... Class 6012-13... for high-speed general-purpose welding on low or medium carbon steels.
- DH... Class E-6020-30... for high-current downhand welding on low and medium carbon steels.

Westinghouse
PLANTS IN 25 CITIES . . . OFFICES EVERYWHERE

WELDERS AND ELECTRODES

AS A WEAPON FOR KNOCKING PRODUCTION COSTS DOWN IT'S HARD TO MATCH THIS → THE SCREW WITH THE ENGINEERED RECESS THAT STEPS UP SCREW DRIVING SPEED AS MUCH AS 50% →→→ IT'S **PHILLIPS**

THE ENGINEERED RECESS

Right at your command is one of the most potent and efficient weapons for speeding up assembly and cutting costs that you could hope to find.

It's Phillip's – the Engineered Recessed Head for all kinds of screws.

It's the screw recess that eliminates fumbling, wobbly starts, slant driving, and dangerous skids – the troubles that have long made screw driving slow, awkward – and costly!

It's the screw recess that makes driving easier for workers – helps keep them going at top speed through a full shift.

It's the screw recess that lets you adopt spiral and power driving for assemblies where speed tools have never been practical.

Hundreds of plants have increased screw-driving speeds as much as 50% ... and cut costs correspondingly ... simply by switching to Phillips Recessed Head Screws. Can you do the same? Make the switch to Phillips Screws now – and you'll see. You'll see they cost *less* because they help you produce much *more*!



PHILLIPS *Recessed Head* SCREWS

WOOD SCREWS • MACHINE SCREWS • SELF-TAPPING SCREWS • STOVE BOLTS

TO MAKE WARTIME QUOTAS AND PEACETIME PROFITS

Faster Starting: Driver point automatically centers in the Phillips Recess ... fits snugly. Fumbling, wobbly starts, slant driving are eliminated. Work is made trouble-proof for green hands.

Faster Driving: Spiral and power driving are made practical. Driver won't slip from recess to spoil material or injure worker. (Average time saving is 50%.)

Easier Driving: Turning power is fully utilized. Workers maintain speed without tiring.

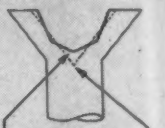
Better Fastening: Screws are set-up uniformly tight, without burring or breaking of screw heads. The job is stronger, and the ornamental recess adds to appearance.



IDENTIFY IT!



Center corners of Phillips Recess are rounded ... NOT square.



Bottom of Phillips Recess is nearly flat ... NOT tapered to a sharp point.

**24
SOURCES**

American Screw Co., Providence, R. I.
Atlantic Screw Works, Hartford, Conn.
The Bristol Co., Waterbury, Conn.
Central Screw Co., Chicago, Ill.
Chandler Products Corp., Cleveland, Ohio
Continental Screw Co., New Bedford, Mass.
The Corbin Screw Corp., New Britain, Conn.

The H. M. Harper Co., Chicago, Ill.
International Screw Co., Detroit, Mich.
The Lamson & Sessions Co., Cleveland, Ohio
Manufacturers Screw Products, Chicago, Ill.
Milford Rivet and Machine Co., Milford, Conn.
The National Screw & Mfg. Co., Cleveland, Ohio
New England Screw Co., Keene, N. H.

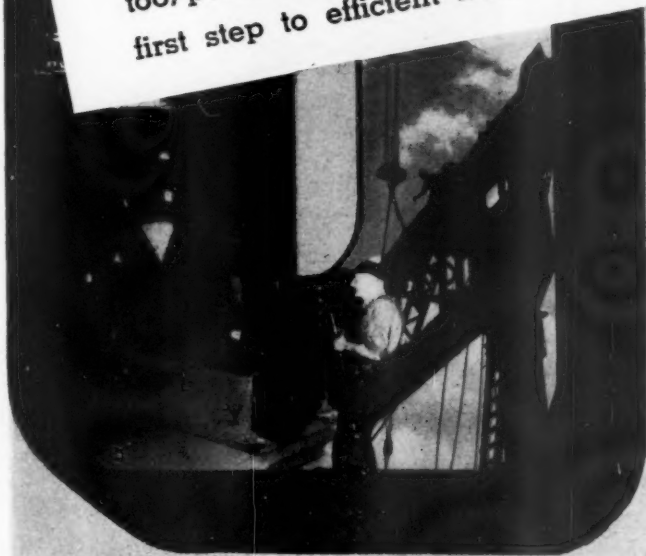
Pawtucket Screw Co., Pawtucket, R. I.
Pheoli Manufacturing Co., Chicago, Ill.
Reading Screw Co., Norristown, Pa.
Russell Burdall & Ward Bolt & Nut Co., Port Chester, N. Y.
Scovill Manufacturing Co., Waterville, Conn.
Shakeproof Inc., Chicago, Ill.
The Southington Hardware Mfg. Co., Southington, Conn.
Wabash Bolt Co., Detroit, Mich.



Tools Sustain the Invasion!

Winning a beach-head is but the first step in any successful invasion. So, too, purchase of good tools is only the first step to efficient metal working.

Care of tools—through proper sharpening and usage—must follow. Cutting tools must produce to their ultimate if D-Day is to become V-Day!



National cutting tools, sold by leading Mill Supply Distributors, are tools of character.

NATIONAL TWIST DRILL AND TOOL COMPANY

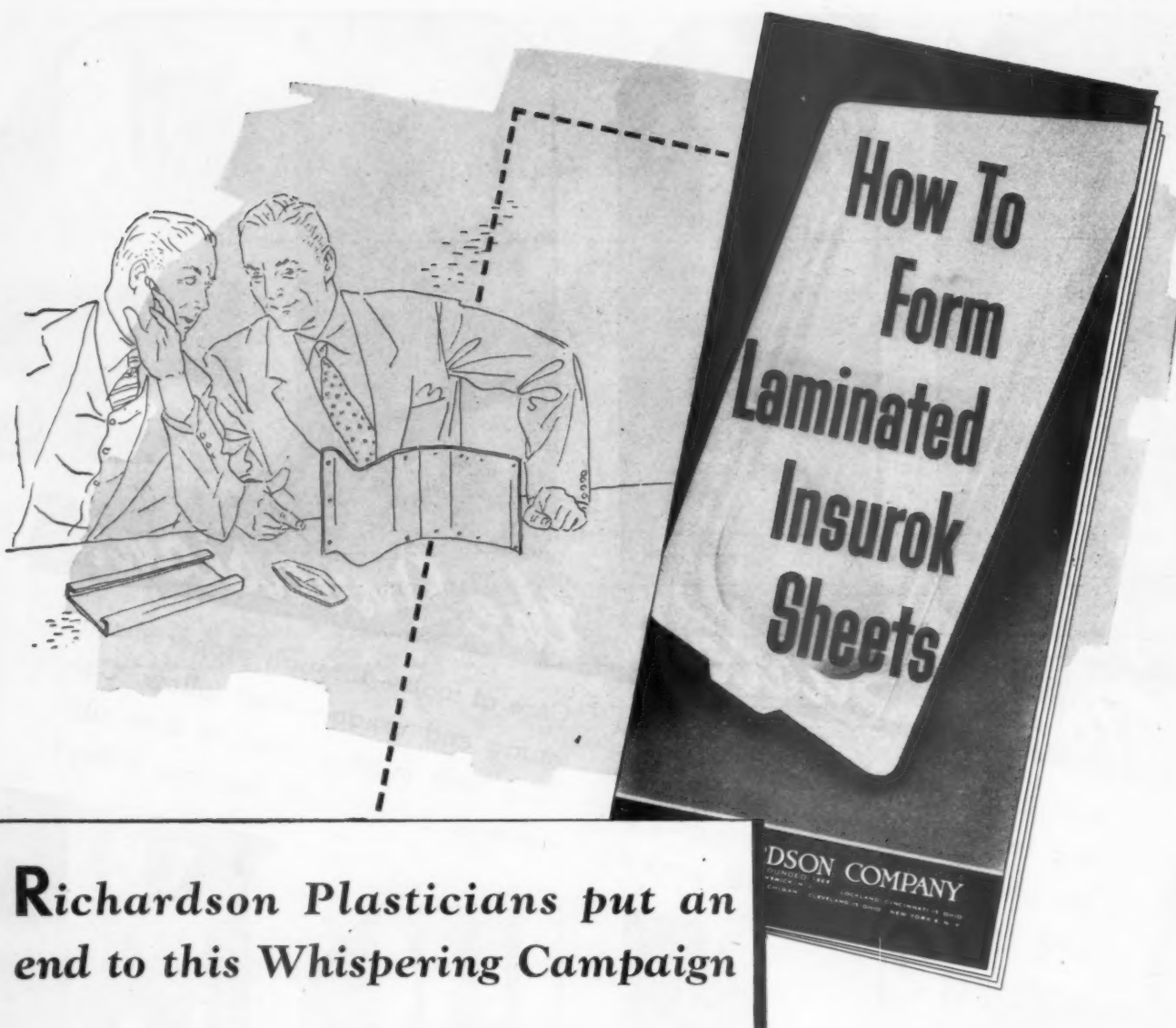


TWIST DRILLS
REAMERS, HOBS
MILLING CUTTERS
COUNTERBORES
SPECIAL TOOLS

DETROIT AND ROCHESTER, MICHIGAN

Tap and Die Division—Winter Brothers Co., Wrentham, Mass.

Factory Branches • New York • Chicago • Cleveland • San Francisco • Distributors in Principal Cities



Richardson Plastics put an end to this Whispering Campaign

They've taken the mystery out of forming Laminated INSUROK plastic sheets! For actually it is a simple process . . . one you can do yourself if you *know how*. And here is a small booklet that puts you in the know . . . the A B C's of how to form laminated plastic sheets yourself.

It is as easy as this:

- A. **HEAT** the laminated sheet uniformly slightly below the blistering point.
- B. **INSERT** the heated sheet in the forming fixture and apply pressure.
- C. **ALLOW** part to cool and then remove.

Result . . . the shape is now permanent.

Laminated INSUROK plastic sheets for forming

have varied uses. They combine strength with lightness . . . are resistant to sudden changes in temperature . . . withstand the destructive actions of most chemicals, reagents, and solvents.

Write today for the booklet that tells all about forming laminated plastic sheets . . . "**HOW TO FORM LAMINATED INSUROK SHEETS.**" It's **FREE** for the asking. Send for it on your company letterhead.

You may prefer to have the forming done for you. If so, the working knowledge and years of practical experience of Richardson Plastics are at your disposal.

INSUROK *Precision Plastics*

The RICHARDSON COMPANY

MELROSE PARK, ILL. NEW BRUNSWICK, N. J. FOUNDED 1868 INDIANAPOLIS 1, IND. LOCKLAND, CINCINNATI 15, OHIO
 DETROIT OFFICE: 6-252 G. M. BUILDING, DETROIT 2, MICHIGAN NEW YORK OFFICE: 75 WEST STREET, NEW YORK 6, N. Y.
 CLEVELAND OFFICE: 326-7 PLYMOUTH BLDG., CLEVELAND 15, OHIO

Have you a problem that we can

help you figure . . . a part, small perhaps, but with
exacting requirements that might well be

precision-molded of rubber or synthetic? Besides a
modern, efficiently organized plant, we offer you

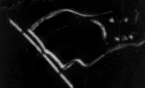
the engineering and laboratory skill and
the manufacturing experience which has helped us

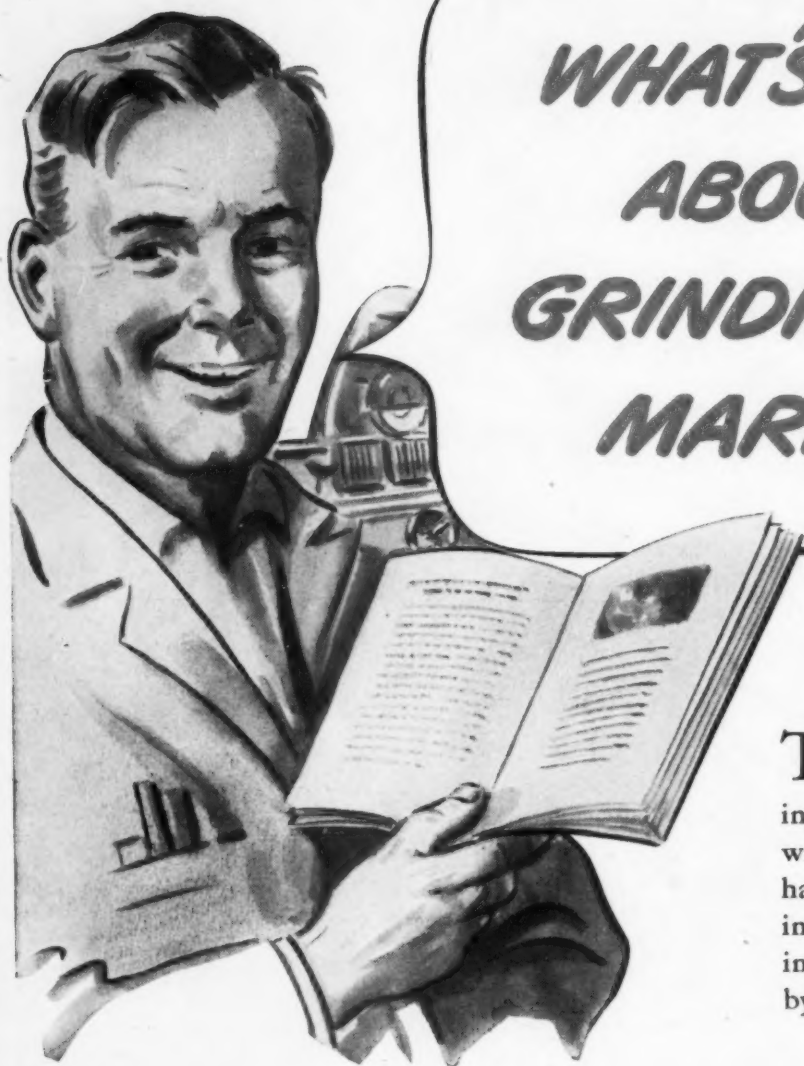
to win four Army and Navy "E" awards for excellence.
Acushnet Process Company, New Bedford, Massachusetts,

Processors of Precision-Molded Rubber Goods.

For rubber, remember the name—

ACUSHNET





WHAT'S ALL THIS ABOUT NEW GRINDING WHEEL MARKINGS!

THAT'S right—from now on it's going to be a lot easier to get the right grinding wheel for the job! Carborundum, along with all other makers of grinding wheels, has adopted a new system of wheel markings. * The new system is one of marking only. So wheels with similar markings by different makers may not grind alike.

This new book gives you a clear understanding of the new markings on Wheels by Carborundum and the grades they indicate. It's also full of information on the proper selection, identification, specification, use and care of grinding wheels.

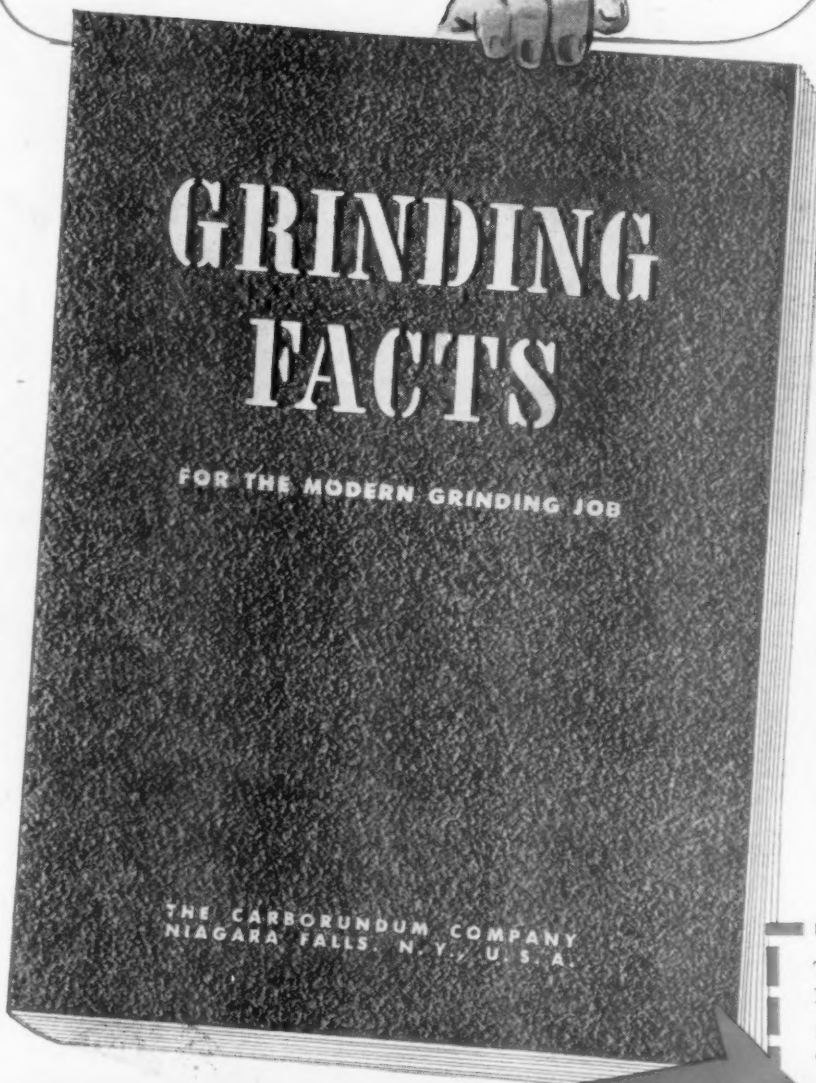
But it does more than that! It includes additional information about the complete Carborundum line, the most complete line of abrasives made and sold under one brand name. It is one of the most useful manuals on abrasives ever published! To get your copy promptly, fill out the coupon and mail today to The Carborundum Company, Niagara Falls, New York. And for help with any abrasive problem, consult your Carborundum Representative!

* Effective soon, these new markings will appear on all Grinding Wheels sold by Carborundum. Because so many of these wheels are in use in industry, it may take a little while before the transition is complete. For as long as is necessary to help our customers, Grinding Wheels by Carborundum will carry both the old and new markings.

→
**YOU NEED THIS BOOK TO
SELECT THE RIGHT GRIND-
ING WHEEL FOR THE JOB!**

THERE IS A
CARBORUNDUM
TRADE MARK
PRODUCT FOR EVERY ABRASIVE APPLICATION

**IT'S ALL
IN THIS NEW
BOOK BY
CARBORUNDUM!**



HIGHLIGHTS FROM "GRINDING FACTS"

1. The fundamentals of Wheel Marking
2. The new Carborundum Wheel Markings
3. Factors to consider when selecting a Wheel
4. Care and Handling of Grinding Wheels
5. The 9 Standard Wheel Shapes
6. Basic Grinding Wheel Functions
7. Types of Grinding Operations
8. Diamond Wheels
9. Green Grit Wheels
10. Mounted Wheels
11. Thread Grinding Wheels
12. Cutting-Off Wheels
13. "MX" Wheels
14. Tool Room Sticks
15. Coated Abrasives
16. New Gradings
17. Wheel Speeds



**MAIL COUPON TODAY
FOR YOUR FREE COPY!**

The Carborundum Company, Niagara Falls,
N. Y., Dept. P.

Please send me my free personal copy of
"Grinding Facts."

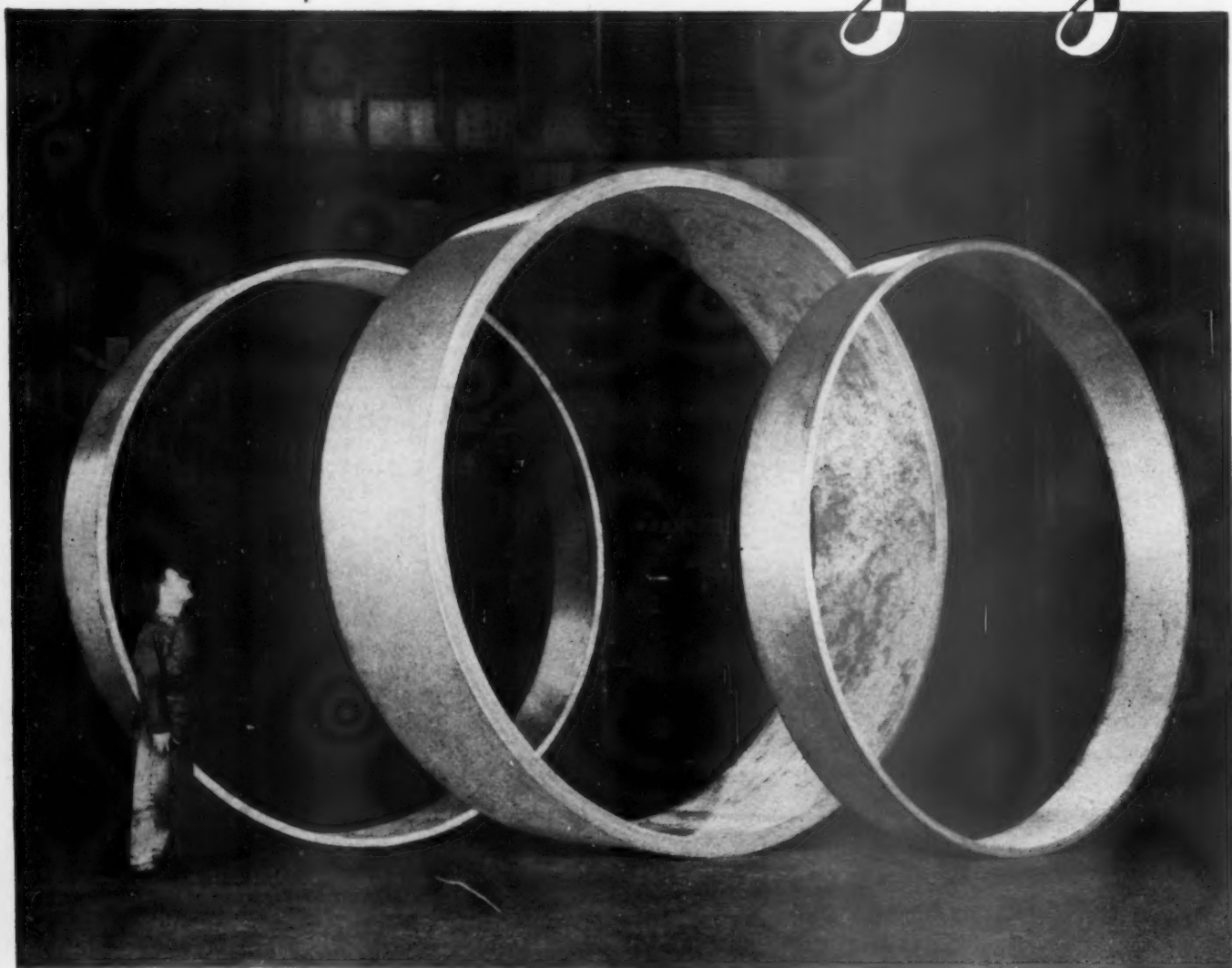
Name.....

Firm.....Title.....

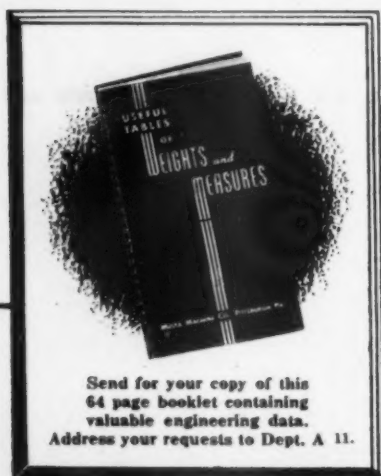
Address.....

(Carborundum is a registered trade mark of and indicates
manufacture by The Carborundum Company)

MESTA Forgings



**Gear Rims Used For Ship Propulsion Drives
Are Forged By MESTA
In One Piece From a Solid Ingot**



Let's All Back The Attack



**MESTA MACHINE COMPANY
PITTSBURGH, PA.**



for
**FAST
MILLING**
on Every Job

END MILLS

FREE CUTTING—LONG-LIVED

Design features of Brown & Sharpe End Mills help keep machine output high — and milling costs low.

The hollow face and rake angle reduce power consumption — increase number of pieces per sharpening. The proper number of teeth increases the cutting efficiency — strong teeth with ample chip space. The double angle land gives proper clearance. These advantages are available in Brown & Sharpe End Mills in a wide range of styles and sizes.

Complete listing in Small Tools Catalog No. 34. See your dealer — today. Brown & Sharpe Mfg. Co., Providence 1, R. I., U. S. A.



**These Features Mean
Higher Efficiency
—Longer Life**

- 1 Strong Teeth
- 2 Hollow Faces
- 3 Double Angle Lands
- 4 Efficient Helix and Rake Angles

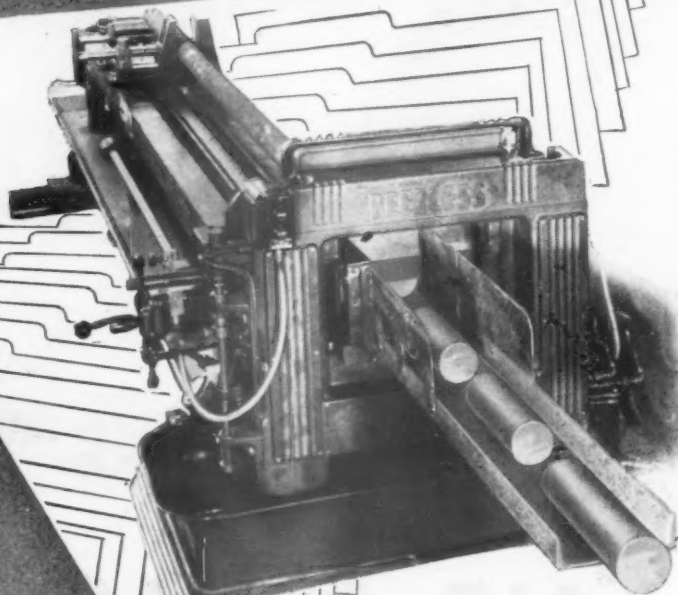
*. . . We urge buying
through the Distributor*



BROWN & SHARPE CUTTERS

ATKINS

STILL PILING UP PROOF
of "Silver Steel" Speed and
Staying Power



SILVER STEEL

Power Hacksaw Blade Cutting Report

8½ minutes the cut on 6" diameter No. 94100 steel, (equivalent to Temken No. 5200) with a variation of .005 to .008 was recorded for 6 tooth Silver Steel Power Blade, operated at medium speed of 100 strokes per minute, 275 pounds feed pressure, using sulphated oil cutting compound. 35 to 40 cuts secured per blade.

Make the Most of Modern Machines

Take full advantage of the cutting capacity built into modern power hacksaw machines. Use Atkins "Silver Steel" Blades to realize full returns on your investment. They cut faster, for longer periods.

● When, as in the case of Atkins "Silver Steel" Blades, record breaking production continues to be reported almost two decades after their introduction, it's clear proof that here are blades that are "right".

For the records of "Silver Steel" superiority keeps piling up. Whether the performance is gauged by cutting speed, as in the typical report

cited... or long blade life... or fewer work stoppages for blade changeovers... Atkins "Silver Steel" Hacksaw Blades are up with or ahead of the rest. That's the result of the finest saw steel, fashioned by the industry's leading saw engineers into fast-cutting, long-life blades.

Have the advantages of "Silver Steel" performance in your plant. Ask us for complete cutting data.

E. C. ATKINS AND COMPANY, 466 South Illinois St. Indianapolis 9, Indiana

Agents or Dealers in All Principal Cities the World Over

Tools Are Weapons...TREAT 'EM RIGHT!

Copper is the trunk of an indispensable family tree

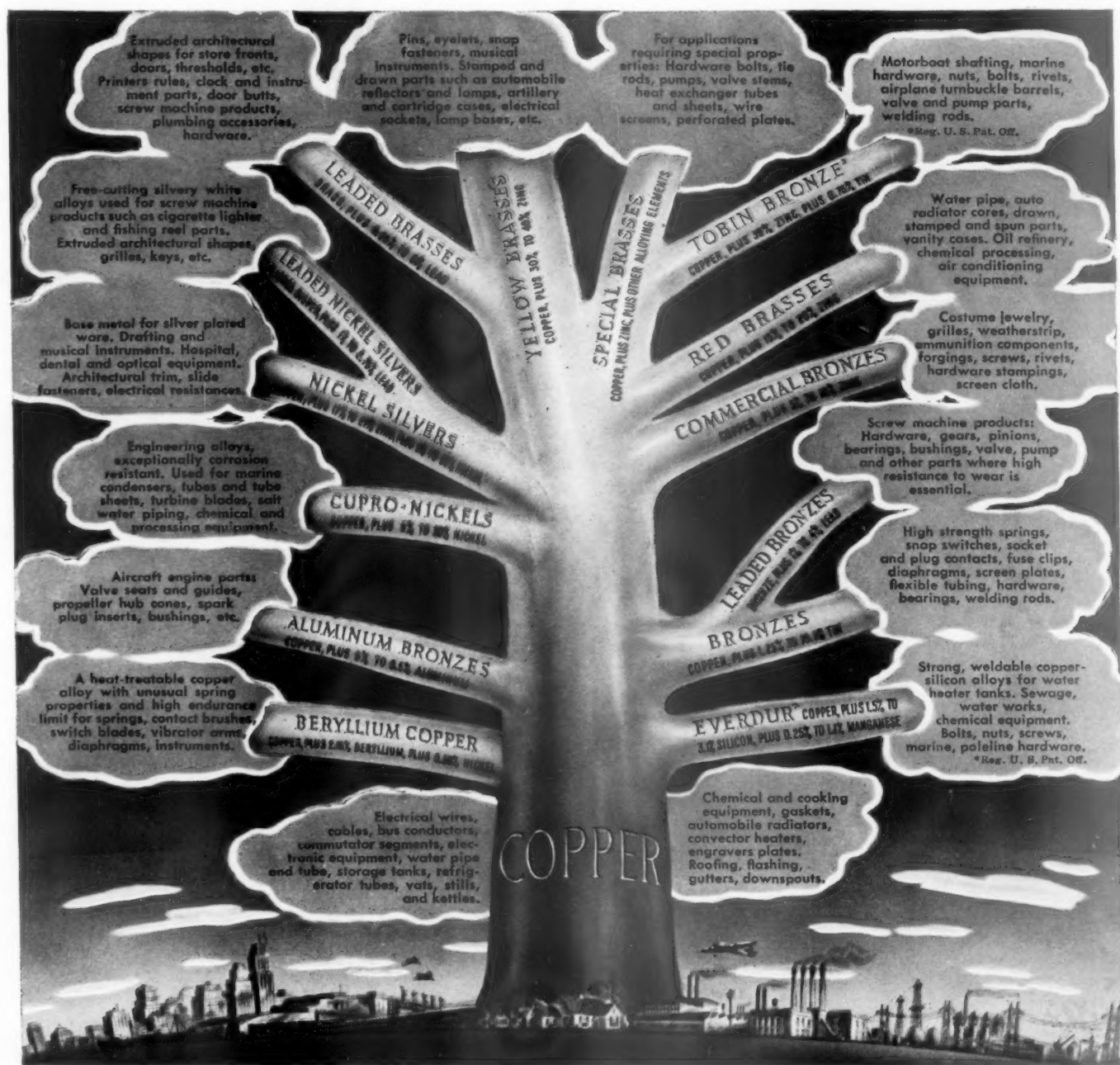
THE COPPER family of alloys is versatile, indeed. These dependable metals have contributed to the development of practically all technical and industrial progress. Other metals may have more distinctive properties. Chromium is harder; magnesium is lighter; silver has higher conductivity. But . . . of all commercial metals, copper and its alloys *combine to best advantage* a range of physical and chemical properties not found in any other group.

These properties include a high degree of corrosion

resistance; high tensile strength and fatigue resistance; ductility; hardness; toughness; ready weldability; resistance to abrasion; hot or cold workability; machinability, and high thermal and electrical conductivity.

Yet, these very properties, singly or in combination, can be varied to a considerable extent by metallurgical adjustment of composition and by changes in the technique of fabrication. When it is considered that Anaconda Products are made not only of copper, but of copper alloyed with zinc, tin, nickel, lead, aluminum,

(continued on next page)



Anaconda Copper & Copper Alloys

The Scope of

(continued from preceding page)

manganese, silicon, beryllium, chromium and other elements, and that each alloy is produced in a wide variety of commercial sizes and shapes, the need for strict laboratory control of all materials and every step of production becomes readily evident.

2,506,329 Laboratory Tests made in 1943

The scope of routine laboratory control over all mill operations and practices can be gaged by the number of tests made during 1943 in the laboratories of The American Brass Company—2,506,329. This includes tension and bend tests, conductivity or resistance tests, examinations under the chemical and metallurgical microscopes, and chemical and spectrographic determinations.

Examining a spectrum plate. The presence or absence of various elements is determined by matching a master plate with the unknown spectrum. Semi-quantitative analysis can be made by comparing the relative intensity of element lines in the sample spectrum with those in exposures of standard samples made on the same plate.



CHEMICAL AND METALLOGRAPHIC LABORATORIES



A. Electrolysis is utilized for the accurate and rapid determination of copper and certain other elements in copper alloys. In this apparatus, platinum anodes are mechanically rotated. The exact weight of copper after deposition and drying is quickly indicated by the latest type Projection Reading Analytical Balance. Determinations of copper and lead contents, for instance, can be made in less than an hour. **B.** The American Brass Company pioneered in its field in the use of colorimetric methods of analysis. The Photo-Electric Colorimeter illustrated accurately determines amounts of certain constituents of copper base alloys—in minutes, instead of hours formerly required by the usual wet methods of analysis. **C.** Control of grain structure is important in obtaining the required physical properties of copper alloys. Here, on the Grain Size Comparator, the diameter of average grain of a brass specimen is being de-

termined by directly comparing the magnified image of the specimen with "transparencies" of known standards. **D.** The preparation of all types of specimens and the production of photomicrographs at medium and high magnifications require a high order of skill and experience in operating the metallographer's most useful tool—the Metallurgical Microscope. In technical circles an enviable reputation has been earned by The American Brass Company for the excellence of its photomicrographs.... But before microscopic examination can be made, the specimen must be carefully polished and etched to reveal the essential details. An electrolytic method of doing this had been brought to a high state of development by The American Brass Company, and routine use for a period of several years has proved its advantages over the slower method of mechanical polishing and chemical etching.



Anaconda Copper & Copper Alloys

TECHNICAL CONTROL over Anaconda Alloys

Such extensive application to technical details—plus the craftsmanship inherent in more than a century of experience in the art of making brass—have led the way in producing Anaconda Alloys possessing unusual uniformity and dependability.

Foremost in Research

You would expect the largest fabricator of copper and copper alloys to be foremost in the search for greater metallurgical knowledge in that field:

As early as the turn of the century, The American Brass Company instituted routine laboratory control of alloy compositions, replacing the father-to-son methods of mixture determination which up to then had prevailed throughout the Industry.

In 1902, the trend toward more accurate control of grain size and structure was initiated through the use of the metallurgical microscope.

In 1914, a large quartz spectrograph was installed, the first in this country to be used for metallurgical research and qualitative analysis of alloys.

The Research Department of The American Brass Company has produced and tested thousands of copper base alloys, many of which are now in common use for special types of service, providing higher strength, greater workability, and better corrosion resistance than ever before available.

It has often combined in one alloy the specific properties of several others, providing an opportu-

(continued on next page)



RESEARCH AND SPECTROGRAPHIC LABORATORIES

Operations performed in the spectrographic analysis of metals are of three types: Qualitative—in which the identity of the elements alloyed to form the sample is established; Quantitative—in which the presence of certain elements is confirmed and the amount of each measured precisely; or Semi-Quantitative—in which certain elements are identified and the amounts estimated by comparison with standards representing the specification limits. **E.** In this quartz prism spectrograph, radiation from the arc passes through the slit and is dispersed by the large quartz prism to form on the photographic plate an image of the slit for every wave-length present in the arc. Each element "writes its signature" on the plate—positive proof that the element responsible for those lines is present in the sample. **F.** Rather than by a prism, disper-

sion of the radiation passing through the slit on this grating-type Spectrograph is obtained by a diffraction grating ruled on a concave mirror. The spectral lines characteristic of each element vary in intensity in proportion to the amount of the element present in the sample. **G.** This Densitometer-Comparator is being used for examination of spectra taken on the grating-type Spectrograph. A magnified image of the spectrum appears on the screen, and is compared with a master plate imaged on the lower third of the screen. **H.** This X-ray Diffraction Unit has a wide variety of research applications: Determinations of the amount and type of preferred orientation; identification of phases, and determination of their lattice parameters are a few. Certain mill operations also are brought under more rigorous control with its aid.



Made by The American Brass Company

PLANNED RESEARCH is finding the answers to many metal problems

(continued from preceding page)

nity for manufacturers to reduce production costs, simplify tooling requirements, and increase the serviceability and value of their product.

It has developed mill procedures to facilitate production and assure quality.

It has developed readily weldable copper base alloys, welding rods, and procedures for their use—making possible the economical use of strong, corrosion resistant, lightweight assemblies where more cumbersome castings of rustable metals were formerly employed.

Answers to other metal problems have been found in the development of strong, ductile, workable alloys of brass, bronze or nickel silver—with composition, temper and grain size adjusted to provide the best combination of characteristics for

operations such as spinning, stamping, cupping, forming, deep drawing or machining. Resulting economies include longer life for dies and cutting tools, greater uniformity of parts, product improvement, and a lower over-all manufacturing cost.

The goal of this painstaking laboratory control and planned research program is that the Anaconda Copper or Copper Alloys you select will fully meet your manufacturing requirements and the service standards of your product—that they will be moderate in price, economical to use, and wholly adequate to your needs.

The Technical Department of The American Brass Company will be glad to work with you in selecting the best metal for a specific application.



THE AMERICAN BRASS COMPANY

General Offices: Waterbury 88, Connecticut • Subsidiary of Anaconda Copper Mining Company
In Canada: ANACONDA AMERICAN BRASS LTD., New Toronto, Ontario

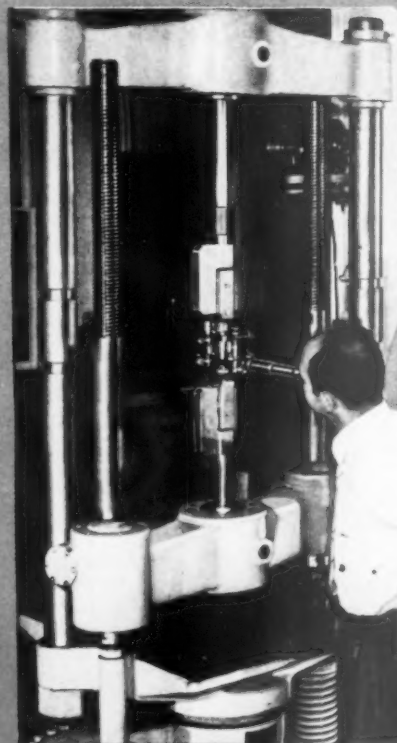
44118

SECTION OF PHYSICAL TESTING LABORATORY

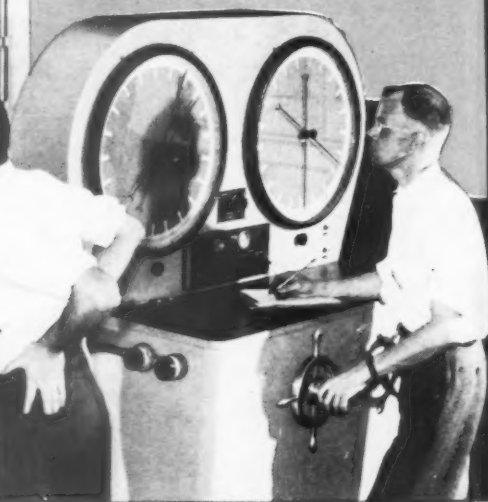


TESTED TO DESTRUCTION—

—so that Anaconda Metals in service may have longer life. Performance of Anaconda Alloys in simulated service is constantly checked in the Testing Laboratories. This broken phosphor bronze strip fatigue specimen withstood approximately 50,000,000 cycles of reversed stress, on the Fatigue Machine illustrated, at a deflection corresponding to an initial stress of 25,000 lb. per sq. in. before failure occurred.



Tensile strength, elongation, yield strength and other data necessary for sound engineering applications of Anaconda Alloys are accurately determined on this Precision Tension Testing Machine. Precise loads are applied to the specimen, at room or elevated temperatures, and the extent of deformation determined with an Extensometer.



Anaconda Copper & Copper Alloys

Taking a "part" in THE HIT PARADE



Continuation of the mighty part bombing is contributing to quicker Victory depends largely on the speedy, undamaged arrival at assembly points of the many component parts that make-up U. S. sky giants. The illustration shows a bomber part being packaged for safe arrival in an H & D corrugated shipping box . . . another good example of how packaging is efficiently linking production with assembly.

Wartimely packaging at H & D means more than satisfying current wartime demands; thorough research into every packaging project for applications that will improve the usefulness of future packages, is also included.

H & D Package Engineers are ready *now* to help plan and design *your* packages for coming requirements. Don't be caught in the big rush that is bound to come when "every day" business is again the rule. H & D have many packaging helps ready to protect and promote your product. Write a *line* to H & D now and you won't have to *stand in line* later.

BUY WAR BONDS TO SPEED VICTORY

Tells HOW TO SPECIFY with Corrugated Boxes

There's more to specifying than meets the eye. Specifying corrugated boxes is an important assignment. These shipping boxes offer many opportunities to effect real savings and add to packaging efficiency. In the H & D Little Packaging Library Booklet, "How to Specify Corrugated Boxes" there is valuable specification data for all shippers. For your copy write The Hinde & Dauch Paper Company, Executive Offices, 4423 Decatur Street, Sandusky, Ohio.



• • •
 FACTORIES in Baltimore • Boston • Buffalo
 Chicago • Cleveland • Detroit • Gloucester, N. J.
 Hoboken • Kansas City • Lenoir, N. C. • Montreal
 Richmond • St. Louis • Sandusky, Ohio • Toronto

For postwar packaging... better see

AUTHORITY ON PACKAGING . . .

H&D HINDE & DAUCH
 CORRUGATED SHIPPING BOXES

BAUER & BLACK

Industrial Tape

PRESSURE SENSITIVE ADHESIVE

Is Your REAL Problem Hidden under a Lot of Little Ones?

Possibly your operational costs can be reduced measurably by a simple Industrial Adhesive Tape use you have not yet discovered. It can be, too, that you could climb to new highs in production in the same process.

Searching out hidden problems in your plant — helping you to solve perfectly apparent ones — is as much our job as supplying the finest Industrial Adhesive Tape. In some plants we've actually helped cut tape costs 15% to 45% . . . and general plant operations have been speeded up, with lowered costs . . .

Nearly half a century of experience in making many kinds of adhesive tapes counts a lot in this job we do. By careful, thorough analysis of your *specific* problems, by testing and retesting when necessary in our laboratories, we may out of our experience help you and your engineers uncover some really big problem that has been obscured by a lot of baffling little problems . . . and solve both big and little!

We are at your service. Why not write, without obligation, to Dept. 211, and set a time when our trained sales engineers may consult with you on your *specific* problems?

A product of

BAUER & BLACK


DIVISION OF THE KENDALL COMPANY
2500 SOUTH DEARBORN ST., CHICAGO 16, ILLINOIS

CASE HISTORY No. 11

Production of fighter and bomber planes requires the making, forming and finishing of from 600 to 1800 highly precisioned tubes which must be sealed at both ends against dirt and corrosion. And it was desired that they also be made tamper-proof before final assembly.

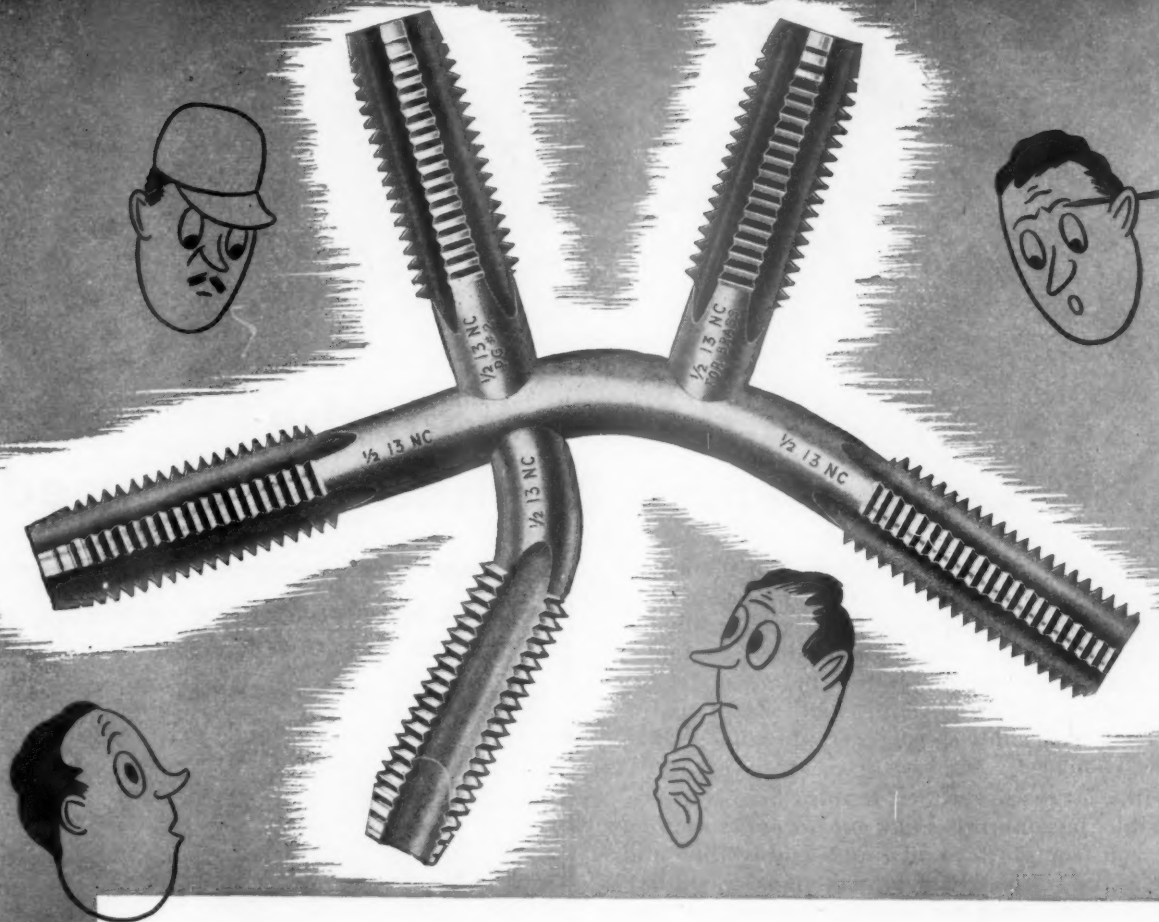
Bauer & Black, in collaboration with aircraft engineers, solved the problem by developing Picotape specifically for this purpose. Costs were lowered; the stocking and handling problem was simplified. Rejects were reduced to a minimum.

Whether your problem is large or small, you too may find our research mightily worthwhile. It's yours without cost.



RESEARCH
for
EFFICIENCY
and
ECONOMY

An ALL-PURPOSE TAP?



..there ain't ***NO SUCH THING!***

But, there *is* a tap for every purpose! Every material, almost every type of threading job, requires a particular tap or die built to do the particular job.

Don't waste time and money experimenting when you meet new thread-cutting problems. The Greenfield Tap and Die Corporation maintains a complete staff of field men and factory engineers whose accumulated experience in all phases of thread-cutting is readily available to you.



GTD GREENFIELD

SIMPLY CALL YOUR
"GREENFIELD MAN" THROUGH
YOUR GREENFIELD DISTRIBUTOR



GREENFIELD TAP and DIE CORPORATION • Greenfield, Massachusetts

Don't lay that pencil down



... till you show where the Short Cut Fastening Method can be used!

Choosing the fastening device for use in the assembly of your post-war product is a very important decision. It should be settled now, while the product is still in the design stage. Too many products are tooled up and ready to go into production before somebody starts to really question fastening methods. This frequently leads to needless expense, troublesome delays, and costly changes.

You will want to use P-K Self-tapping Screws wherever possible, because this *short cut fastening method* can save you from 30% to 50% in assembly time and labor! It is the *simplest* way to make most assemblies. You eliminate tapping for machine screws, and tap expense - fumbling with bolts and nuts - costly inserts in plastics - riveting in hard-to-reach places.

Whether you are working with light or heavy steel, cast iron, aluminum, brass, plastics - you'll find you can use P-K Screws to advantage in 7 out of 10 cases.

A P-K Assembly Engineer will help you plan ahead for savings, and you'll find his advice unbiased. He'll recommend only the best Self-tapping Screw for the job, because Parker-Kalon makes *all* types. Write and tell us when you would like him to call, or send details of your fastening jobs for recommendations.



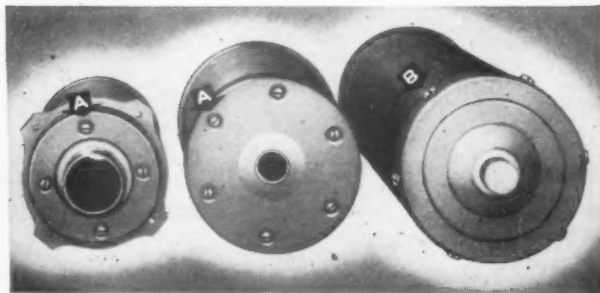
HELPFUL GUIDE FREE!

The P-K "User's Guide" is crammed full of information on where and how to use P-K Self-tapping Screws, arranged so you can find the facts you need quickly. Write for it. Parker-Kalon Corp., 208 Varick St., New York 14.



SELF-TAPPING SCREWS FOR EVERY METAL AND PLASTIC ASSEMBLY

HERE'S HOW PUROLATOR PRODUCTS, INC. PLANNED AHEAD FOR ASSEMBLY SAVINGS



(A) 4 Type "Z" Screws fasten sheet metal cap to steel (or aluminum) frame.

(B) 6 Type "Z" P-K Screws fasten the cast iron cap to steel tubing wall.

A Purolator executive says, "We designed most of our filters with P-K Screws in mind...to eliminate tapping."

"At least 4 P-K Screws are used in each Purolator unit. If we had to tap holes (800,000 per year) for machine screws, it would require ten times our present labor force, or lower production by the same ratio."

Purolator Products, Inc., make a wide variety of filters for gasoline, oil, air, etc., which are standard equipment on many vehicles, vessels, and airplanes.

PARKER-KALON

Quality-Controlled
SELF-TAPPING SCREWS

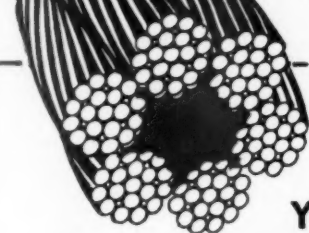
*When you say, "Make it ROEBLING
'Blue Center'" you buy a lot of
things that can't be wound
on a reel*



ROPE that has known capacity to deliver service.

ENGINEERING in our plant and at your job, to put the rope to work right.

MAINTENANCE practices that protect its long life.



YOUR POSTWAR PROFITS and post-war jobs will depend in part on operating rope-rigged equipment at lowest possible cost. You can leave that part to Roebling.

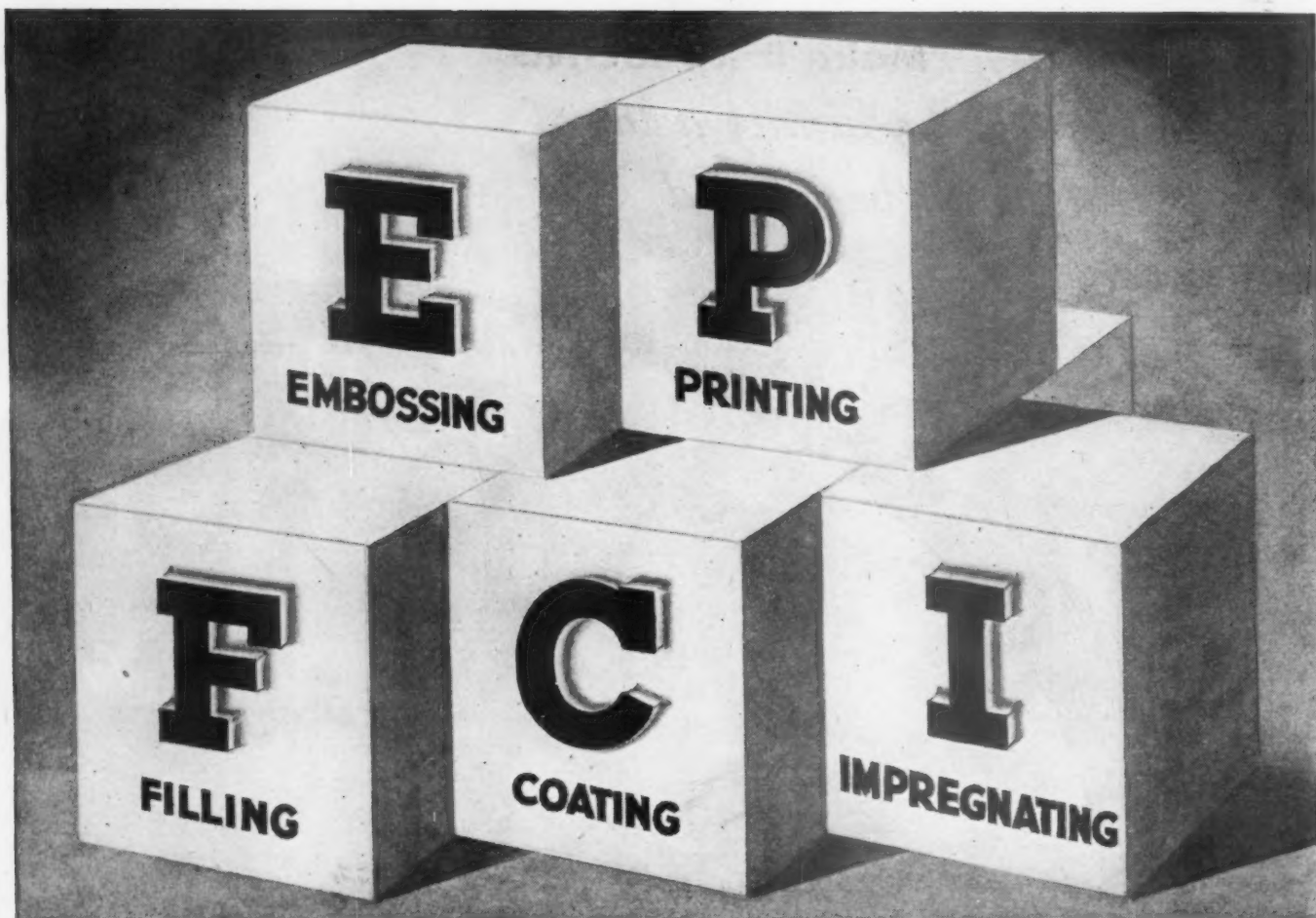
JOHN A. ROEBLING'S SONS COMPANY, Trenton 2, New Jersey
Branches and Warehouses in Principal Cities

ROEBLING

PACEMAKER IN WIRE PRODUCTS



WIRE ROPE AND STRAND • FITTINGS • COLD
ROLLED STRIP • SUSPENSION BRIDGES AND
CABLES • AIRCORD, SWAGED TERMINALS AND
ASSEMBLIES • AERIAL WIRE ROPE SYSTEMS
ELECTRICAL WIRES AND CABLES • ROUND
AND SHAPED WIRE • HIGH AND LOW CAR-
BON ACID AND BASIC OPEN HEARTH STEELS
WIRE CLOTH AND NETTING



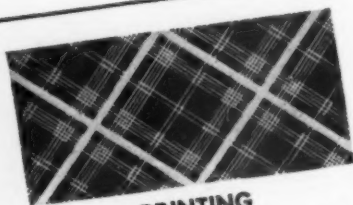
To the basic F-C-I we now add *Printing* to broaden the use field of special finished cloth . . .

Printing means adding to the finished cloth surface a color, design or pattern purely decorative or in which may be combined a trade mark, firm name, pictorial sketch, etc.

Cloth may be surfaced for any printing or lithographing process but as we use the term "printing" we mean running from cloth rolls on a production basis. Some very novel and beautiful printed effects have been produced on cloth for

bookbinding. Multiple colors may be used and reasonably accurate register of colors maintained.

As cloth finds new fields of industrial use the possibilities of printing become greater. *Printing* may be definitely regarded as one of the major steps in preparing cloth for specialized uses.



PRINTING

as a cloth finishing process involves the running of the cloth from roll to re-roll at production speeds. Penetrating colors are generally used and the cloth texture is not affected. Printing is one of the steps in specialized cloth processing offering many applications and variations to fit special needs.

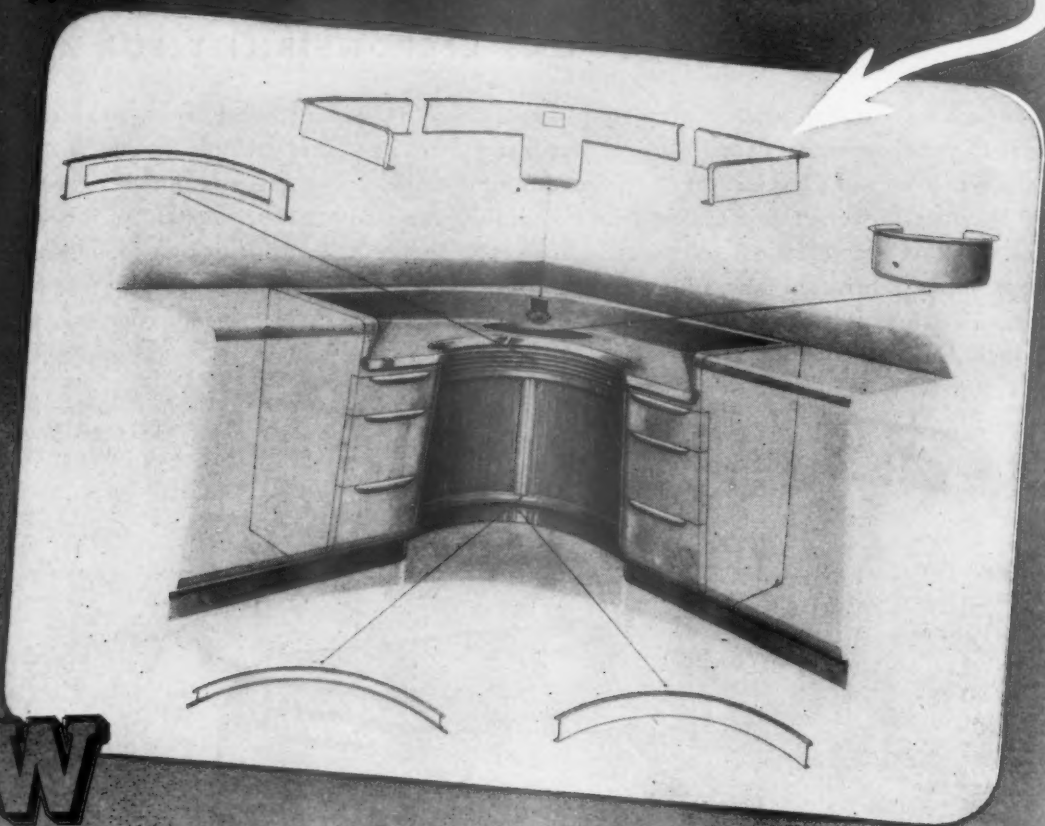
CURRENT HOLLISTON PRODUCTION

includes COATED AND IMPREGNATED FABRICS INSULATING CLOTH BASE SEPARATOR CLOTHS rubber, starch-filled, glazed. TRACING AND BLUE PRINT CLOTHS white and blue, ink or pencil. MAP CLOTH, PHOTO CLOTH, self-adhesive. REINFORCING FABRICS. SIGN, LABEL AND TAG CLOTHS, waterproof to take any ink, meet any inking problem. BOOK-BINDING CLOTHS. SHADE CLOTH, impregnated waterproof, opaque, translucent or light proof.

We urge you to consider CLOTH; and invite you to consult with us concerning possibilities and developments for your specific requirements.

The Holliston Mills, Inc.
PROCESSORS OF CLOTHS FOR SPECIAL PURPOSES
NORWOOD, MASSACHUSETTS
Sales Agents in Principal Cities

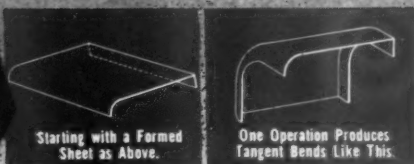
Does your **PRODUCT PLANNING** include
difficult Tangent Bends like these



SW

TANGENT BENDER provides unlimited possibilities for designers and builders of modern sheet metal equipment . . .

Edge Bends in One Economical Operation.

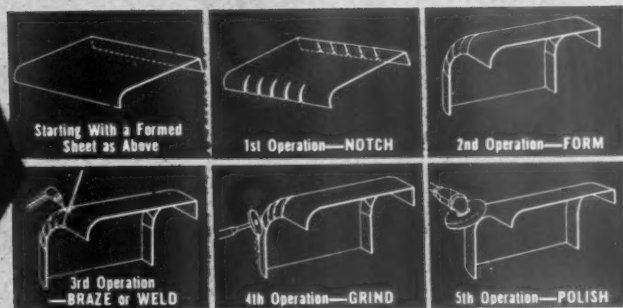


Starting with a Formed Sheet as Above.

One Operation Produces Tangent Bends Like This.

Making Desirable Low Cost Bends, Without Further Grinding or Finishing.

Eliminates ALL THESE COSTLY OPERATIONS.



Starting With a Formed Sheet as Above

1st Operation—NOTCH

2nd Operation—FORM

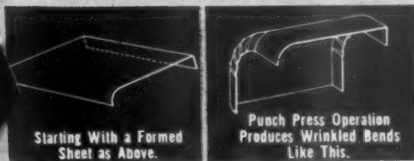
3rd Operation—BRAZE or WELD

4th Operation—GRIND

5th Operation—POLISH

This method produces a product of equal quality at much higher cost.

Eliminates an Unightly Product like this.



Starting With a Formed Sheet as Above.

Punch Press Operation Produces Wrinkled Bends Like This.

Production cost the same as with S W Tangent Bender but too unsightly for general use.

The Tangent Bender is unique in its ability to smoothly edge bend sheet metal so that no further finishing is necessary. It is a multi-purpose machine that can be kept in constant production for blanking, piercing, notching, forming, etc., when tangent bending work is not available.

Write for descriptive, informative bulletin No. 53-T.

STRUTHERS WELLS CORPORATION

Special Equipment Division

TITUSVILLE, PA.

PLANTS AT TITUSVILLE, PA. AND WARREN, PA.

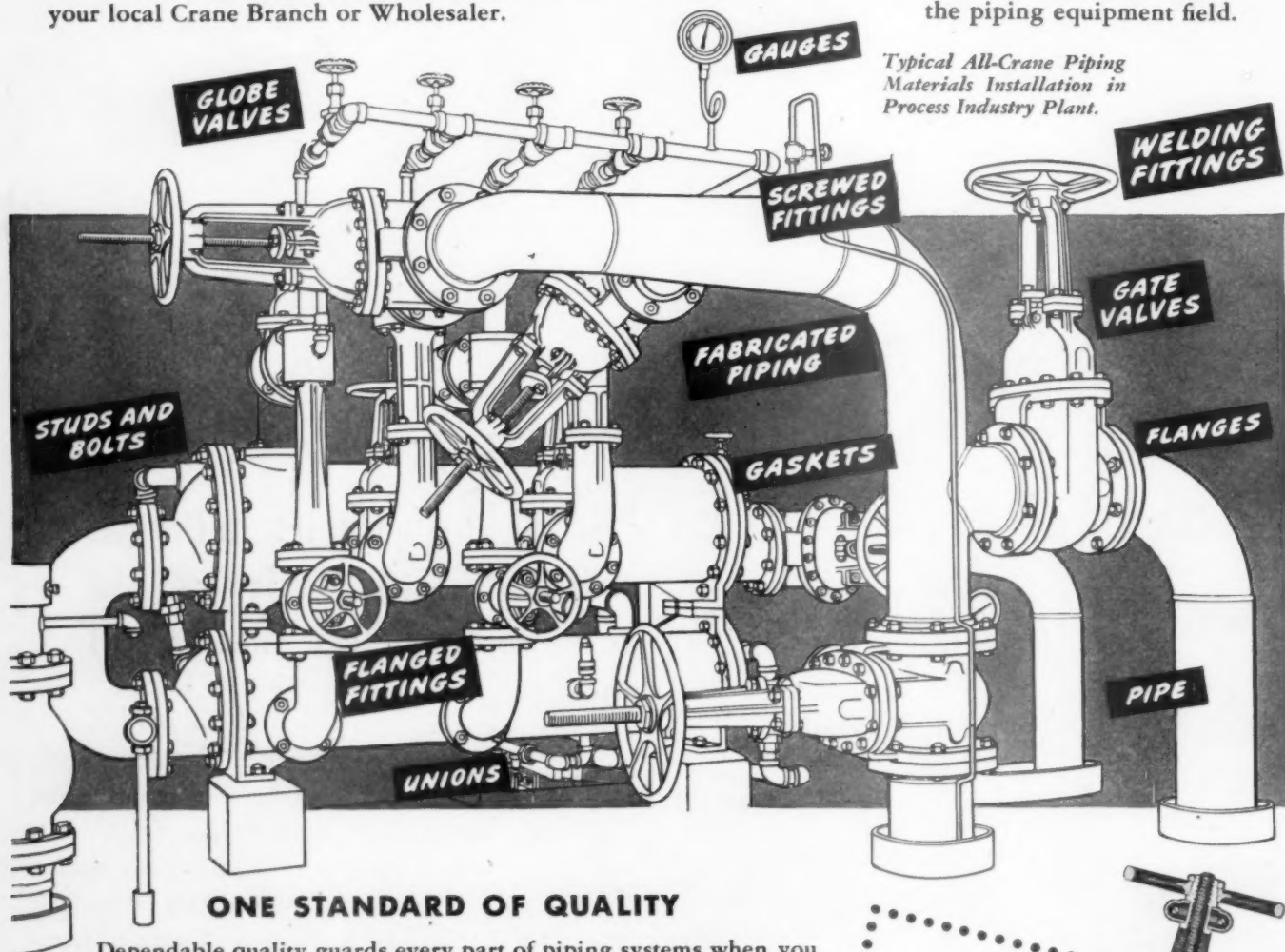
Offices from coast to coast

Piping Materials for Any Need ...Crane Can Supply Them

ONE SOURCE OF SUPPLY . . . ONE RESPONSIBILITY FOR ALL EQUIPMENT

The easiest way to dispose of piping supply problems is to put them up to Crane. Doing that gives you the world's greatest selection of equipment for every service—power or processing systems, high or low working pressures. All your needs of valves, fittings, pipe, fabricated assemblies and piping accessories are supplied from one single source—your local Crane Branch or Wholesaler.

Now when you are trying to catch up with deferred maintenance, Crane *complete* piping materials service is a big advantage. From ordering to installation, every step of the job is simplified. And while one responsibility for materials helps assure the best installations, you are also getting full benefit of Crane Co.'s 89-year experience and leadership in the piping equipment field.



Typical All-Crane Piping Materials Installation in Process Industry Plant.

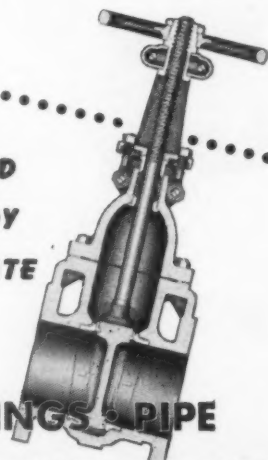
ONE STANDARD OF QUALITY

Dependable quality guards every part of piping systems when you specify Crane materials throughout. Such quality is exemplified by Crane Iron Body Wedge Gate Valves. Strong body sections resist severest strains. Straight-through ports permit unrestricted flow. A deep stuffing box lengthens packing life. Long guides keep disc travel true, while the finest design in every part assures long life and smooth, trouble-free service.

Crane Co., General Offices: 836 S. Michigan, Chicago 5, Ill.

Branches and Wholesalers Serving All Industrial Areas

**STANDARD
IRON BODY
WEDGE GATE
VALVES**



CRANE

**VALVES • FITTINGS • PIPE
PLUMBING • HEATING • PUMPS**

Have You Checked on your Grinding Jobs?

...on the use of NORTON RESINOID WHEELS?

It took Norton laboratory men thousands of man-hours to perfect the various Resinoid Grinding Wheel bond formulas for the various jobs such as weld grinding, disc grinding, snagging, thread grinding, cutting off, roll grinding, billet grinding.

Just for example, has your shop tried a Norton 24-Q4T-H specification for weld grinding,—

or, a 14-P4T-L for snagging steel castings when using a swing frame machine, or a 3714-O4T for snagging cast iron?

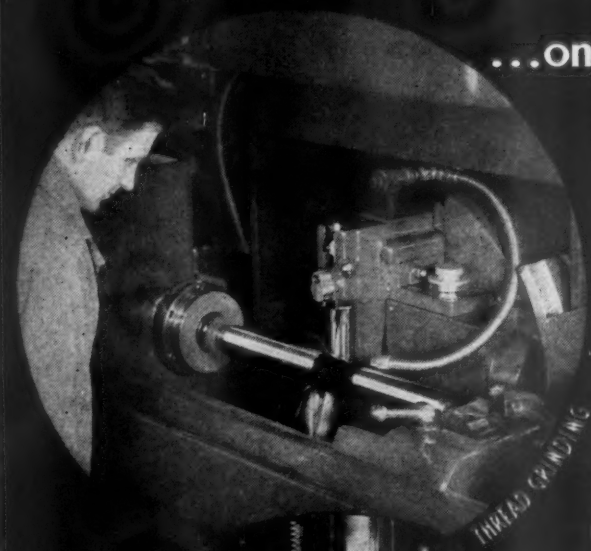
Have you made use of Norton engineering "know-how"?

NORTON COMPANY

Worcester 6, Mass.

Distributors in All Principal Cities

Behr-Manning, Troy, N. Y., is a Norton Division



NORTON ABRASIVES



They've Got What it Takes

● Uncle Sam's fighting Yanks "have what it takes." No matter how tough the going . . . in any kind of weather . . . they win their way through.

Right now, as for months past, much of INLAND's production is being used for the exacting needs of war. INLAND fibre boxes are carrying vital supplies to our armed forces all over the world.

Like the fighting Yanks, these INLAND shipping boxes have to absorb rough treatment,

stand hard knocks . . . and carry on through—in every kind of weather. They, too, have to have "what it takes."

Now, with war moving toward final Allied victory, INLAND is looking ahead to the coming days of peace, and is preparing to serve the needs of industry even better than before.

INLAND CONTAINER CORPORATION

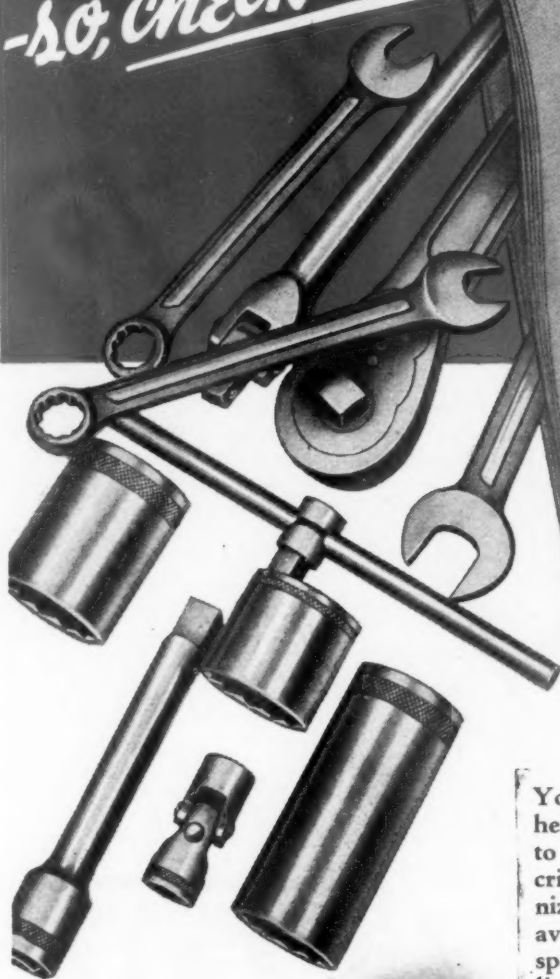
INLAND

CORRUGATED FIBRE BOXES



INDIANAPOLIS, IND. • MIDDLETOWN, OHIO • EVANSVILLE, IND. • MILWAUKEE, WIS.

*Tools are
still fighting
— so, check this*



The complete
New Britain Line
for Automotive,
Aircraft, General
Maintenance and
Production Needs
is sold by leading
Jobbers.

TOOL AVAILABILITY LIST

THE NEW BRITAIN MACHINE CO. . . . New Britain, Conn.

You who operate vital production and maintenance services here at home have had to get along with existing Hand Tools to a large extent and have done a grand job of it. Yet, the critical importance of civilian uninterrupted production is recognized and means have been provided to make Hand Tools available to those who must keep it going. There has been much speculation about buying new Tools and the question of deliveries . . . but, when you work with your supply house from New Britain's Tool Availability Lists, you get the answers — and quick! What — How and When . . . the whole story on *What Tools* are available to you today, *How* you can get them, and *When*. It's still up to you to make your present Tools go further and do more, but when replacements *are* needed, check a New Britain Tool Availability List! The New Britain Machine Co., New Britain, Conn.

New Britain



The Army-Navy "E" Pennant, with star, flies over New Britain's plants, signaling outstanding production of machine tools, aircraft engine parts and projectiles.

THE NEW BRITAIN MACHINE CO. **HAND TOOLS**

How Much Can You Cut the Cost OF DEPOSITING WELD METAL?

The table at right shows typical cost reductions made possible by carefully selecting the largest size electrode practical for the job at hand. This accurate study takes into account all factors such as labor, overhead, power, electrode costs, etc. Note the progressive lowering of cost as electrode size is increased.

That's one reason why WSR (Welding Service Range) is so important. It tells you exactly the usable welding current your machine will deliver, from minimum to maximum. You know what size electrodes you can properly handle.

The ample capacity of P&H Welding machines is due to their more liberal use of copper—more efficient operation. Start now to speed all kinds of welding work—and cut your welding costs. Ask about the WSR rating for the P&H Arc Welder most suitable for your class of work.

Cost per pound of depositing weld metal with AWS, E-6010 Electrode.

Electrode Size	Cost per Pound
1/8"	
5/32"	\$2.56
3/16"	2.05
1/4"	1.72
5/16"	.99
3/8"	.74
	.55

P&H WSR Models are built in a range of capacities to handle all sizes of electrodes from 1/8" to 3/8"—all with a single heat control. "Visi-matic" Calibration enables the operator to select the exact current required for each of the three basic groups of electrodes.



WSR (Welding Service Range) ratings are given for all P&H Arc Welders. Ratings are based upon the actual output of each machine, enabling you to buy more wisely on the basis of cost per ampere.

General Offices:

4577 West National Avenue

Milwaukee 14, Wisconsin

HARNISCHFEGER
CORPORATION

ARC WELDERS • EXCAVATORS • ELECTRIC CRANES • MOTORS • HOISTS • WELDING ELECTRODES

Ask also about P&H Welding Electrodes, available in all sizes and types for production and maintenance welding. Send for literature.

Canadian Distribution: The Canadian Fairbanks-Morse Co., Ltd.



The villain of this film threatens your plant, too!

FIRE, the saboteur, can destroy your plant — even though you've installed the most modern fire-fighting equipment! If your men don't know how to operate it, or if they use the "right" equipment against the wrong fire, disaster can easily result.

Believing that visual instruction is easiest understood, longest remembered, Walter Kidde & Company have produced a color film with sound. It shows exactly what to do when fire strikes. It

pictures the different classes of fire, shows how to fight each of them. It's fast-moving, grips the attention of its audience during the twenty minutes of its run.

We'd be glad to show this film to key men at *your* organization. There is no obligation whatever for this service. Just drop a line today to the address below and we'll arrange a showing at your convenience.



WALTER KIDDE & COMPANY, INC., 140 CEDAR STREET, NEW YORK 6, N. Y.



PROTECTS

The tough, resilient, coiled rawhide faces of C/R Hammers and Mallets strike effective blows without battering or marring... protects finished surfaces, machines delicate insulation and parts. Speed die-setting, assembly, no fatiguing re-coil. Reduce breakage and spoilage. Sizes and weights for every need.

C/R Hammers have permanent malleable iron heads which take replaceable insert faces of coiled mechanical rawhide.



CHICAGO Rawhide MFG. CO.
1294 ELSTON AVE. ★ CHICAGO, ILLINOIS.

F.O.B. *Philosophy of buying*

IF you happened to tune in on Omaha the other evening—or any of the 46 NBC network stations carrying the Union Pacific's "Young America" program—you would have heard the following conversation. The speakers are Reporter Ray Clark and UP's General Purchasing Agent, Gus T. Wickstrom.

Gus, the answer to this may be rather obvious, but tell me—What does a purchasing department purchase?

Well, Ray, in this one we buy everything that's needed for the railroad, whether it's 500,000 pounds of dressed beef, 2 tons of half-inch bolts, or a new locomotive.

When you say everything, do you mean everything? Like punches for the ticket-takers and erasers for the stenographers, and so on?

Yes, Ray, everything. It means just that.

Then I'd say you must buy quite a few different items in the course of a year.

Our stock list contains about 120,000 different items.

And I suppose it goes without saying that you buy quite a lot of most of those items.

Well, the 79,000 purchase orders issued last year covered enough material to fill 200,000 freight cars, a train more than 2,000 miles long.

Just imagine a train that long, and trying to walk back to the caboose! Tell me—what was the biggest item you purchased last year?

From the standpoint of territory covered, I'd say the cross-ties and switch-ties we bought—2½ million of them.

Well, I was thinking of something like, say, a locomotive.

In that case, make it 35 locomotives, Ray.

At one time? Well then, what's the smallest item on the list?

Pins.
You mean just common, ordinary, every-day pins?

That's right.
How many packages of pins did you buy last year?

We don't buy them by the package, Ray. We buy them by the ton.

Now wait a minute—
I can show you the bills. One ton of common pins last year.

Alright, I'll take your word for it. How about track?

We use more than 100,000 tons of steel rail in a year, just replacing worn rails along the line.

I suppose it's pretty complicated, buying for a transportation system like this.

Yes, but transportation isn't our only business, Ray. We also handle the purchasing for the hotels and clubs that we operate for our employees, and then there are some coal mines and oil fields where we get fuel for our trains. Then in peacetime, there was Sun Valley. It's now a Naval Recuperation Center, but we'll be buying for it again some day.

I guess what it boils down to is that I'm just a piker when I go shopping. But anyway, I don't have the bills to pay that you do.

It does run into money. The 35 locomotives I mentioned cost 10 million dollars. All told, last year we bought 86 million dollars worth of materials and supplies. We made purchases in 41 of the 48 states.

In other words, the Railroad has a tremendous purchasing power, affecting thousands of manufacturers and suppliers and providing work for millions of employees, thereby making a great contribution to the economic stability of the nation.

That's quite right.
Thank you, Gus T. Wickstrom, General Purchasing Agent of the Union Pacific Railroad in Omaha.

SOMEWHAT belatedly, we report the commendation issued by the Army Chief of Transportation in the Mediterranean Theatre of Operations, to a Quartermaster outfit at an African port, which set an all-time record for the volume of military supplies and troops moved—"one of the greatest logistical achievements of history." The officer in charge was Lieutenant Colonel Jim Berry, well known to purchasing men as P. A. of the Drackett Company in Cincinnati prior to 1940, when he went into active service with the rank of Captain of Artillery. Jim's practical and expert knowledge of packaging, which was put to good use in civilian life in his service as chairman of the N.A.P.A. Shipping Container Committee, has also been of tremendous service in meeting the problems of the Army's supply system. His first assignment was as Chief of the Packing Technical Unit of the Standardization Branch at Washington. For the past two and a half years he has been in administrative and operational work at overseas ports—first understudying the British

Movement Control Staff at a chain of British ports, then moving to North Africa where he hung up the above-mentioned record, and currently somewhere in Italy. Says Jim:

"It is my personal opinion that all Army packing has improved, or the experience gained in handling supplies has lessened the beating it takes, or both. This does not mean that there is any room for relaxation in quality standards, however, for our big subsistence depots still have huge mountains of foodstuffs to repack."

HERE'S a new angle on paper conservation that makes a lot of sense to us, for it recognizes that a great deal of paper has more second-hand value than could be recovered by putting in into a baling press and chewing it up to make more paper. Briefly, the Technical Training Rehabilitation Committee of the Industrial Marketers of Cleveland has discovered that its Advertising Agency members, in the course of their business, receive anywhere from 3 lbs. a month to 800 lbs. a week of trade and business magazines, loaded with authentic industrial information, and it proposes to put this information systematically at work by placing it at the disposal of war-wounded veterans to aid in their re-education for resuming their places in the business world. The plan has been enthusiastically approved by Army officials and educators. The bulletin outlining the project says in part:

Business publications provide an important aid not always recognized. They are the power lines that run parallel to all avenues of education and understanding in American industry.

All engineering and production progress is based upon a continual exchange of technical information. Technical and business periodicals are commonly accepted as the authority for their respective industries. American industry depends upon these periodicals for current information in all fields of technical manufacturing research and experience. There is no other readily available source of information on industrial progress to draw from except this common pool represented by these periodicals.

To make the thousands of business, technical, industrial and trade papers available to hospitals and other military bases after they have served their purpose in the advertising agency offices—is the part we ask you to carry out in your community.

As advertising men you and we know the importance of the business and trade press, and it is our job to see that these papers are put to further use among the men in the armed forces.

Longer Life through PROPER LUBRICATION



WIRE ROPE is continually fighting a battle-royal with corrosion, friction and wear. Because of the hazards involved, it is neither safe nor economical to use a rope whose original strength has been reduced (by either corrosion or wear) to a point where it no longer affords an adequate factor of safety.

But the safe life span of a wire rope can be greatly extended by keeping it correctly lubricated at all times. The lubricant applied during manufacture will not last indefinitely.

The greatest harm resulting from incorrect or insufficient lubrication is the rust and decay that takes place within the rope. For the most part corrosion is an "undercover" worker as its action is not always visible until too late.

Friction and wear fight hand in hand. Their attack is within and without. Every time a wire rope bends there is a sliding movement of both wires and strands where they contact one another. There is also friction where the rope comes in contact with the sheaves and drum.

Proper lubrication will help wire rope win its battle for Longer Life, as it lessens friction, promotes flexibility, reduces wear and retards corrosion. The right kind of lubricant to use and the frequency with which it should be applied, depend upon the conditions under which the rope is operating. We shall be glad to give further details on this important subject.

Important: An idle wire rope is more vulnerable to corrosion than one in use. So be sure to give your ropes the protection of a good lubricant when they are not in service.

A. LESCHEN & SONS ROPE CO.

WIRE ROPE MAKERS
5909 KENNERLY AVENUE

NEW YORK • 90 West Street
CHICAGO • 810 W. Washington Blvd.
DENVER • 1534 Wazee Street



ESTABLISHED 1857
ST. LOUIS, MISSOURI, U. S. A.

SAN FRANCISCO • 820 Fourth Street
PORTLAND • 914 N. W. 14th Avenue
SEATTLE • 3410 First Avenue South

You'll need steel fast!

Reprinted from American Metal Market

WPB Lays Plans For Civilian Goods

Program Designed To Speed. Reconversion

WASHINGTON—Acting Chairman J. A. Krug, of the War Production Board, has announced, following a meeting of the full Board, that the Army, Navy, and major war agencies have unanimously agreed on a program designed to provide the utmost stimulus to reconversion when Germany is defeated, while at the same time, protecting production necessary for the Japanese war.

Acting upon findings that there will be a reduction of about 40% of war production within three months after the defeat of Germany which will free over 4,000,000 workers, the Board decided to:

1. Remove almost all controls over materials immediately upon the defeat of Germany except those that are absolutely necessary to assure the reduced measure of war production necessary to beat Japan. This means that all manufacturers can use any plant and any materials that are not needed for military production for any civilian production.
2. The War Production Board and other Government agencies will...

Remember Frasse!

Reconversion brings plenty of problems—but steel need *not* be one of them. Changeovers can be made months earlier by using warehouse stocks; tons of steel are ready in Frasse plants—available the moment your designs are set.

Frasse stocks of cold finished bars, tubing, stainless steel, alloy, and aircraft steels have more

than doubled to serve your needs. By buying from these stocks for immediate production, you can save weeks, even months, in reconverting to peacetime products.

The pent-up demand for *your* product will not wait on dragged-out deliveries. No matter when your reconversion starts—you'll need steel fast. Call Frasse.

Frasse

MECHANICAL AND AIRCRAFT STEELS

COLD FINISHED CARBON BARS, SHEETS AND STRIP • SAE, AISI AND NE ALLOY BARS • DRILL ROD • AIRCRAFT ALLOY BARS AND TUBING • STAINLESS STEEL SHEETS, STRIP, PLATES, BARS, WIRE, PIPE AND TUBING • SEAMLESS CARBON AND ALLOY TUBING • SEAMLESS PIPE AND CONDENSER TUBING • WELDED CARBON AND ALLOY TUBING

PETER A. FRASSE & CO., INC. 17 Grand St., New York 13, N. Y. (Walker 5-2200) • 3911 Wissahickon Ave. Philadelphia 29, Pa. (Radcliff 7100-Park 5541) • P. O. Box 946, Buffalo 5, N. Y. (Washington 2000) • Jersey City 2, N. J. • Hartford 5, Conn. • Rochester 4, N. Y. • Syracuse 2, N. Y. • Baltimore 2, Md.



Suppose Bill came home tomorrow

SURE it would be mighty nice to have Bill back on the job . . . giving you the same type of service which you received before he left. Yes, your ***Industrial Supply Distributor** would welcome Bill back, too . . . Bill and all of his brother salesmen who are doing a bigger job right now.

We know that Bill won't be home tomorrow

. . . nor even the day after. But we feel confident that the day is coming . . . soon!

In the meantime, remember that your ***Industrial Supply Distributor** is your time-saving, money-saving, worry-saving central source of supply. You can help him serve you better during this emergency by ordering as far in advance as possible. Don't forget to . . .

Telephone your **I S D** **FIRST!**

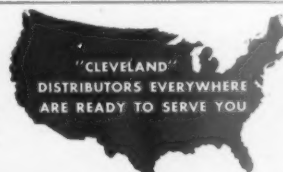


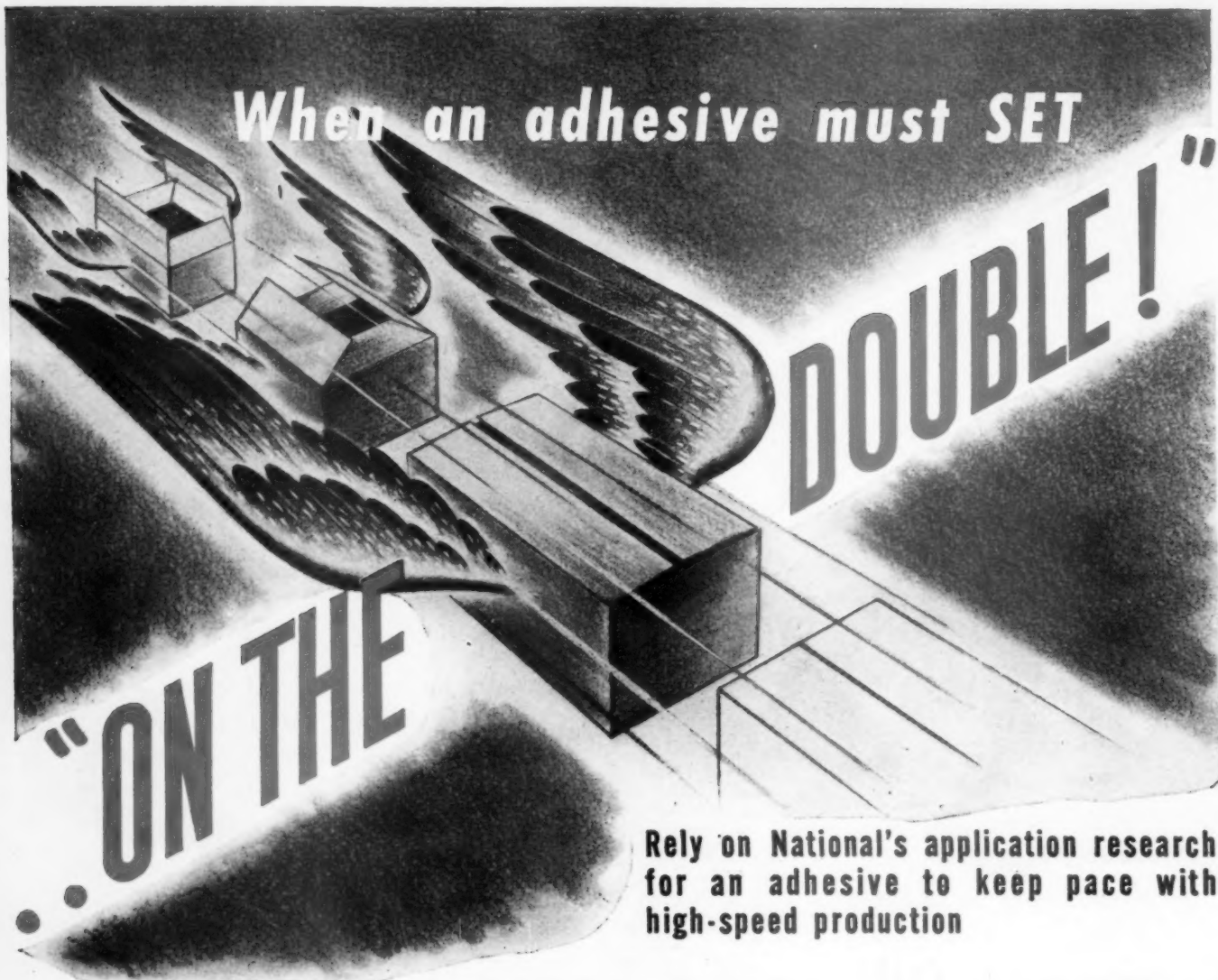
The

CLEVELAND

TRADE MARK REG. U. S. PAT. OFF. AND FOREIGN COUNTRIES
20 THOMAS ST. NEW YORK 9 NORTH JEFFERSON ST. CHICAGO 6515 SECOND BLVD. DETROIT LONDON - E. R. BARRUS, LTD. - 35-36-37 UPPER THAMES ST. E.C.4

TWIST DRILL COMPANY
1242 EAST 49th STREET
CLEVELAND





Rely on National's application research for an adhesive to keep pace with high-speed production

War-speed production calls for miracles in accelerated adhesion of surfaces under tension. Countless weather-proof fibre cases for overseas shipment of food and ammunition have to be sealed. Countless folding boxes for medical supplies have to be seamed. Countless rolls of fabrics and blueprints have to be spliced for continuous run.

National's successful experience in gaining maximum production speeds from modern packaging machinery is based upon an expert knowledge of the chemical and mechanical requirements of each adhesion problem — and an expert knowledge of adhesive formulations.

National makes every type of adhesive. And to the one exact formulation, National adds an extra margin of operating safety as insurance against commercial variables. Because the value of an adhesive is based, *not upon its almost insignificant unit cost*, but upon the final sales protection it gives to your product.

You can safely rely upon National's application research to engineer the one exact adhesive to your specific job. Inquiries are invited — NOW!

Offices: 270 Madison Avenue, New York 16; 3641 So. Washtenaw Avenue, Chicago 32; 735 Battery Street, San Francisco 11, and other principal cities.

national ADHESIVES

EVERY TYPE OF ADHESIVE FOR EVERY TYPE OF ADHESION

PURCHASING PREVIEWS

From the Washington office of

PURCHASING

National Press Building

Washington, D. C.

November 1, 1944

For Purchasing Executives:

GENERAL DISAPPOINTMENT has been voiced over the Surplus Disposal Law as finally enacted. Criticism has been largely aimed at the creation of a three-man board to establish policy, and at the provisions that give preferential treatment to special interests.

The smooth operation of a three-man board depends on a degree of compatibility among top administrators that is seldom seen in Government. The preferences set up under the law will create inconveniences and difficulties, but these can be bridged without undue change in the basic policies which have already been established, and which are likely to shape surplus disposal in the future.

In evaluating the problem of surplus disposal, it is apparent that the political considerations which shaped the present law will continue to be a factor in the regulations which are established, and in any further legislation which may be enacted.

The problem will extend as an economic hangover into another decade. A foretaste of what is likely to develop was provided in the experience with Muscle Shoals--just one industrial development which the Government had to dispose of. When this is contrasted with the many facilities of all types which will be held by the Government as an aftermath of this war, a discouraging basis of comparison is established.

The choice and easily converted properties will go quickly. The white elephant types will remain just that.

* * *

PRICE ADMINISTRATOR Chester Bowles in a memorandum to the OPA Advisory Committees outlined his reconversion pricing policies. He suggested that the 1942 price levels should be the goal, but pointed out that where higher prices are absolutely necessary to compensate for higher costs, a higher ceiling will be granted.

Reconversion price policy, he stated, should accomplish the following:

1. It must encourage maximum production. It must not stand in the way of the manufacturer's desire to produce to the limit of his capacity. This means prices which yield good profits for business, large or small, on the basis of high volume production.
2. The pricing policy must be easy to apply. Decisions must be made rapidly. Manufacturers have a right to expect from OPA the quickest possible answers on requests for prices on new items. It must be realized, however, that prices cannot be set without adequate information from the businesses affected.
3. Pricing policies in the reconversion period must encourage the continued payment of high wage rates. When wages are reduced, purchasing power begins to dry up. Through the loss of overtime and through some unavoidable unemployment, as plants are reconverted from wartime production to peace, some deflation in the take-home wages of our industrial workers is inevitable. If this trend were increased by pricing policies that would result in a general lowering of wage rates, we would soon face a serious depression.
4. OPA pricing policies must continue to protect the public against general increases in cost of living. Rents, food and clothing prices must be held at no higher than present levels. On consumer goods which

have been out of production for some time, increases must be granted only when absolutely necessary, and held to the minimum amounts needed to encourage volume production.

5. OPA pricing policy must not contribute to any repetition of the farm collapse which followed the inflation in prices after World War I. The ability of our farmers to purchase industrial products and generally to increase their standard of living has been tremendously improved during the war period. With sustained high purchasing power, our farmers can furnish some of the largest and most profitable markets for industrial products.

6. OPA pricing policy must call for the elimination of price control as rapidly as possible. This means that ceilings should be removed on each product or in each industry one after another, when there is no longer any danger of inflationary price rises in that particular field.

If we decontrol too quickly, we will find ourselves in serious trouble, with the possible need for reimposing controls at a later date. But if we hold controls in effect after they are no longer needed, it will tend to discourage production and initiative on the part of industry.

* * *

GOVERNMENT CONTROLS EXERCISED TO ESTABLISH PRICE CEILINGS will be increasingly used to establish price floors.

The most general use of price manipulation by Government regulation for the sole purpose of maintaining firm prices has been in the food field. However, similar device is now being used to bolster the price of scrap aluminum.

Aluminum scrap has literally been a drug on the market for some time past. The bulk of this scrap has not been suitable for reuse in military items, and the restrictions on civilian manufacture kept this market at a trickle. Accumulators who anticipated future usage represented the only active market, and as these holders built up excess reserves, the price of aluminum scrap dropped progressively.

The final action has been to prevent the sale of Government-owned aluminum scrap below a schedule of minimum prices. This action has been taken by the Surplus War Property Administration, and while it applies only to Government-owned scrap, it will firm up the market for privately owned scrap.

* * *

DISSOLUTION OF THE WPB CONSERVATION DIVISION highlights the general return to standard models in civilian production.

There has been an acceleration of the trend toward simplification during the war period, and this will remain and continue under the supervision of the Bureau of Standards. However, wartime conservation measures which detracted from the quality, utility and appearance of a product will be quickly dropped.

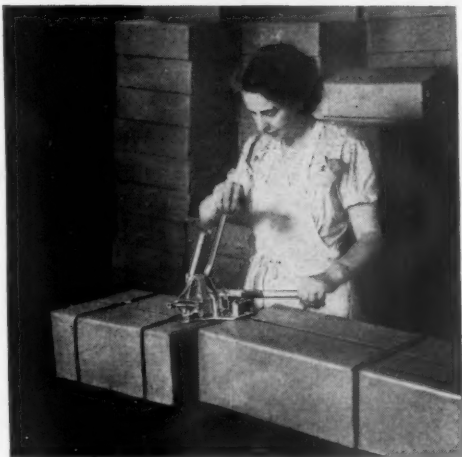
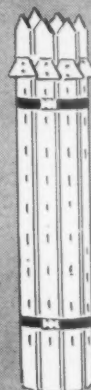
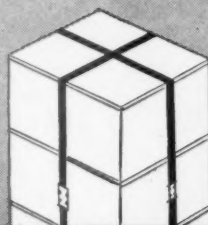
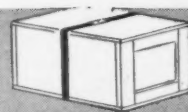
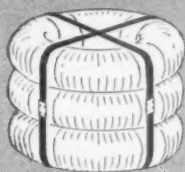
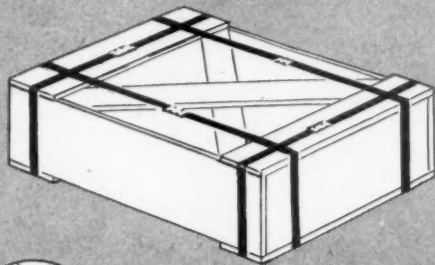
Steps are being taken to keep the following four projects alive:

1. U. S. Conservation Coordinating Committee:--This committee, established in September, 1942, included members from offices of the Under Secretaries of War and Navy, the U. S. Maritime Commission, Board of Economic Warfare and Lend-Lease (now combined in Foreign Economic Administration), Treasury Procurement Division, Aircraft Production Board, and WPB's Office of Production Research and Development, Office of Civilian Requirements and the review and analysis staff of the Program Bureau. This committee has coordinated conservation measures with all other Government agencies, acting from headquarters in the Conservation Division.

2. American Standards Association contract:--Under this contract, the Conservation Division has had the responsibility for development of many important projects to provide thorough standardization of maximum inter-changeability and maximum production. Some outstanding projects carried on include radio and radar; photographic instruments (photography and cinematography); safety clothing of all types; and standardization of screw threads.

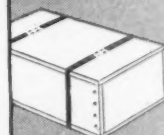
3. Federal Specifications Project:--An official of the Conservation Division was appointed a member on all 72 Federal Specifications technical committees. These committees made recommendations and assisted in the formulation of specifications used in purchasing by all Government agencies.

4. Tin and Cadmium Conservation projects.



PROTECTED BY

Acme
Steelstrap



... "BEYOND THE PRODUCTION LINE"

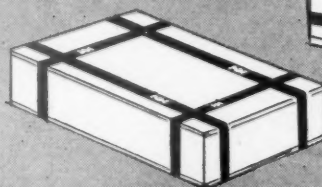
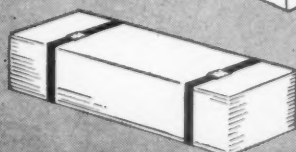
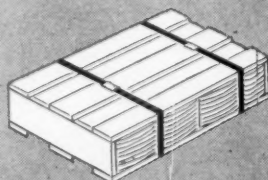
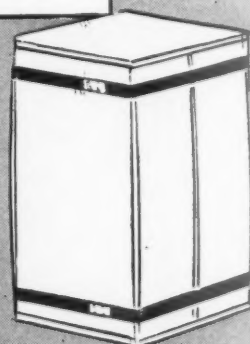
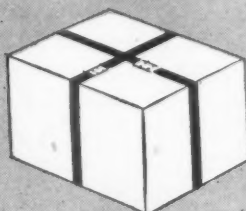
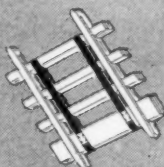
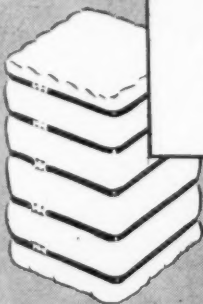


The sole concern of Doc Steelstrap, and the Acme service he represents, is to provide maximum protection for shipping packs through the proper use of scientific reinforcing methods.

Proof of Steelstrap performance is plentiful at home and abroad . . . in Army and Navy depots and arsenals . . . on beachheads, supply dumps and docks the world over . . .

and in the shipping rooms of essential industries.

When Doc Steelstrap and his engineers finish their war jobs, they will be ready to talk about positive reinforcement on cases, cartons and crates; on bundles, bales and boxes; on skid loads; in freight cars, ships' holds and air freight carriers . . . to protect your products wherever you may ship them.



ACME STEEL COMPANY

2842 ARCHER AVENUE, CHICAGO 8, ILLINOIS

ACME STEEL CO.
CHICAGO



**Cool under fire —
because they've been heat-treated**

The best trained troops require tempering under fire to become seasoned fighters. Springs, too, need proper tempering to fit them for the rigorous demands of tough fighting mechanisms. Because heat-treatment is so vital to spring performance, its selection and control come within the realm of our laboratory technicians, with automatic regulation that insures parade-ground precision—precise action—long service. No guesswork—Barnes-made Springs are under strict discipline in every stage of manufacture. They obey *your orders.*

CONSERVE METAL—DESIGN WISELY

1918—
THEN



AND NOW

Barnes-made Springs
ENGINEERED PEP AND POWER

WALLACE BARNES COMPANY DIVISION OF ASSOCIATED SPRING CORPORATION
BRISTOL, CONNECTICUT, U. S. A.

Illinois Gears for *Fast, Smooth, Quiet* Operation

To compete in the postwar market, tomorrow's machinery must have better parts—*smooth gears, accurate gears, quiet gears*. We are specialists in producing precision cut gears.

From sales engineer to shipping clerk, we are vitally interested in every customer we serve. Our manufacturing departments are keyed by old timers who are gear craftsmen.

We are your logical source of supply for cut gears of every type, material and size—for one gear or thousands, standard or special.

Take the first step in getting acquainted
—send for Catalog 39.



ILLINOIS GEAR & MACHINE COMPANY

2108 NORTH NATCHEZ AVE., CHICAGO (35), ILL.



The customer who drops in at a Thermoid branch office, or visits a Thermoid factory, usually makes two impressive discoveries:

- FIRST**—the sincerity of everyone's interest in his call; and
SECOND—the number of persons he sees wearing emblems that resemble the ones pictured here.

Actually, these phenomena are inseparable twins. Both are born of a policy instituted by Thermoid many years ago . . . a policy of company recognitions and rewards that encourage each employee to see himself as an active partner in the one, important business of advancing the common welfare of himself, his employer, his fellow workers and every Thermoid customer. Today, as just one result of that policy, over 300 Thermoid men and women proudly wear service medals representing from 10 years to 50 years of continuous employment with us.

The sense of proprietorship and personal responsibility felt by Thermoid employees is among our most valued assets. It marks a spirit of co-operation that gets things done—and done *right* . . . the spirit that causes Thermoid customers to say: "It's good business to do business with Thermoid."

Thermoid Rubber

DIVISION OF THERMOID COMPANY
TRENTON, NEW JERSEY

DON'T PUT IT OFF
'TIL TOMORROW—
Buy More War
Bonds Today!

THE THERMOID LINE INCLUDES: TRANSMISSION BELTING • F. H. P. AND MULTIPLE V-BELTS AND DRIVES • CONVEYOR BELTING • ELEVATOR BELTING • WRAPPED AND MOLDED HOSE • SHEET PACKINGS • INDUSTRIAL BRAKE LININGS AND FRICTION PRODUCTS • MOLDED HARD RUBBER AND PLASTIC PRODUCTS.

It's Good Business to Do Business with Thermoid

THE *Carbide* AGE

AND ANOTHER RECORD... PRODUCTION AND THE NEW

...TYPICAL OF POSTWAR COMPETITION IT PROMISES

Metalworking plants will need to eliminate "antiquated" methods and equipment, if they are to meet the postwar challenge of competition... better products, greater production *at lower costs*. Conversion to **WESSON** Carbide Cutting Tool methods is aiding war production tremendously, and, at the same time, *setting the pace for postwar production*.

From week to week **WESSON** continues to establish new standards and make new records. For instance, here's another "FIRST" for **WESSON**:

With piloted carbide reamers specially designed and produced by **WESSON** tool engineers, aircraft valve-guide-bushings are being finish-reamed (for the first time) to a "thirteen micro-inch finish" ... an extremely high precision "mirror finish" ... on large scale mass-production basis ... multiplying production many times over, at less cost.

Finer finish, higher precision, greater production resulted. Tool-life, too, is greatly increased. High speed steel reamers required resharpening every 60 to 100 bushings reamed... whereas **WESSON** Carbide Reamers finish 800 to 1200 bushings between sharpenings.

The problem was a tough one, heretofore unsolved anywhere in the tool industry, because the bushing material (soft aluminum bronze) heated up and closed in behind the tool. **WESSON** tool engineers, pioneers in the art of designing carbide tools, were called in because they are in the habit of solving tough problems. They did it again ... meeting extremely rigid aircraft specifications. These same men are available today to aid you in any way they can. Phone, wire or write ...

**WESSON
COMPANY,**

**DETROIT 20, MICH.
(Ferndale Station)**





put a diving suit on a **POLE VAULTER**



LAY-SET *Preformed* **IS LIMBER**

Putting non-preformed wire rope on your machines is like expecting a pole vaulter to make a record when dressed in a diving suit. You shouldn't expect a wire rope that is twisted tightly and under constant tension to operate well and long.

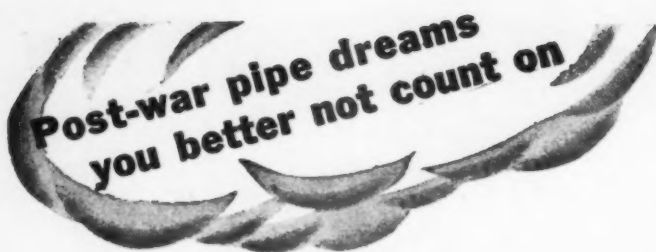
In Hazard **LAY-SET Preformed** every wire and strand is pre-shaped at the mill to the exact helix it must assume in the finished rope. That's why **LAY-SET** is at ease, relaxed, more flexible, and perfectly willing to work. Being free of torsional stresses and strains, being unhampered by twisted effort, Hazard **LAY-SET Preformed** lasts longer, gives you greater dollar value. Be sure your next rope is Hazard **LAY-SET Preformed**.

Hazard **LAY-SET Preformed** Wire Rope is "in the service" on countless jobs for the Armed Forces where it is proving its many advantages. Specify it for *your* use.

HAZARD WIRE ROPE DIVISION • Wilkes-Barre, Pa., Atlanta, Chicago, Denver, Fort Worth, Los Angeles, New York, Philadelphia, Pittsburgh, Portland, San Francisco, Tacoma
AMERICAN CHAIN & CABLE COMPANY, INC. • BRIDGEPORT • CONN.



HAZARD LAY-SET WIRE ROPE



LIGHTING YOUR PLANT WITH LUMINOUS PAINT—Someday, perhaps, a paint that's charged with atomic energy will flood the plant with light — electric fixtures won't be necessary. But today it's still a pipe-dream.



**BUT YOU CAN PLAN
RIGHT NOW FOR —**

**LIGHTING THAT'S RIGHT
FOR EVERY SEEING TASK**



New industrial lighting units, both fluorescent and incandescent, will furnish an adequate level of glareless illumination for jobs that once seemed impossible to light well. In areas where combustible dusts are present, for example, this type of sealed illumination unit eliminates a hazard, and simplifies maintenance. It's backed by the application aid of Graybar Lighting Specialists.

GRAYBAR'S NATIONWIDE NETWORK

of more than 80 warehouses assures you a convenient local source of supply for more than 60,000 electrical items—backed by experienced application aid on problems of wiring, ventilation, intercommunication and power apparatus. A Graybar Man near you is ready to make your electrical supply problems his personal responsibility. Why not take advantage of his time-saving assistance?

5512

GRAYBAR ELECTRIC COMPANY

IN OVER 80 PRINCIPAL CITIES

Executive Offices: 420 Lexington Ave., N. Y. 17, N. Y.

via
Graybar

**ATTENTION—MANUFACTURERS
OF ELECTRICAL EQUIPMENT
AND APPLIANCES:**
To help plan for more efficient
post-war distribution—national
or regional—write for this new
booklet: "Tomorrow's Electrical
Distribution—via Graybar."



PURCHASING

NOVEMBER, 1944 . . . CONTENTS

Published monthly by
CONOVER-MAST COMPANY
 Publication Office: Orange, Conn.

Editorial and Executive Offices:
 205 East 42nd Street, New York 17, N. Y.

Also publishers of
AVIATION MAINTENANCE
MILL & FACTORY
PLANT PRODUCTION DIRECTORY
LIQUOR STORE & DISPENSER

HARVEY CONOVER — B. P. MAST
 Publishers

STUART F. HEINRITZ.....Editor
 GEO. E. HENRY....Associate Editor
 A. M. MORSE, Jr.Manager
 L. E. McMahon..Production Manager
 N. T. Gravin..Asst. Production Mgr.
 E. C. ArinkArt Director

Washington Editor
 A. N. Weeksler
 National Press Building

Western Manager
 Stanley J. Smith
 333 N. Michigan Ave., Chicago, 1

Cleveland Manager
 Richard C. Grove, Leader Building

Advertising Representative
 Alexis G. Graam
 205 East 42nd St., New York, 17

Duncan A. Scott & Co.
 Mills Bldg., San Francisco
 448 So. Hill St., Los Angeles 13



Blue-Print for Post-War Production and Purchasing	69
The Western Purchasing Agent	73
By George Drury	
Contract Settlement	74
Governmental Purchasers Organize for Service	79
By Albert H. Hall	
To Pay or Not To Pay	81
Who Buys for the Petroleum Industry?	82
Six Reasons for Surplus	84
By J. P. Moran	
Stick 'Em Up	89
By Charles Ford	
Eight Lessons We Have Learned from Wartime Purchasing	91
By S. F. Heinritz	
Interested in Surplus?	100
By A. N. Weeksler	
Molding Plastic Products	102
By G. E. Henry	
Efficient Forms Speed Purchasing Procedure	107
P. A.'s Are Human	109
By W. A. Scherff	
Stay Out of Court	110
By Leo T. Parker	
Spending and Saving the People's Money	
X. Bids and Awards	113
By M. E. O'Connor	

MONTHLY FEATURES

"Know-How" Information	10
F. O. B.	52
Purchasing Previews	57
Highlights of This Issue	71
New Products — Ideas	118
Among the Associations	180
Business Machines and Stationery Stores	227
Personalities in the News	254
Index to Advertisers	376

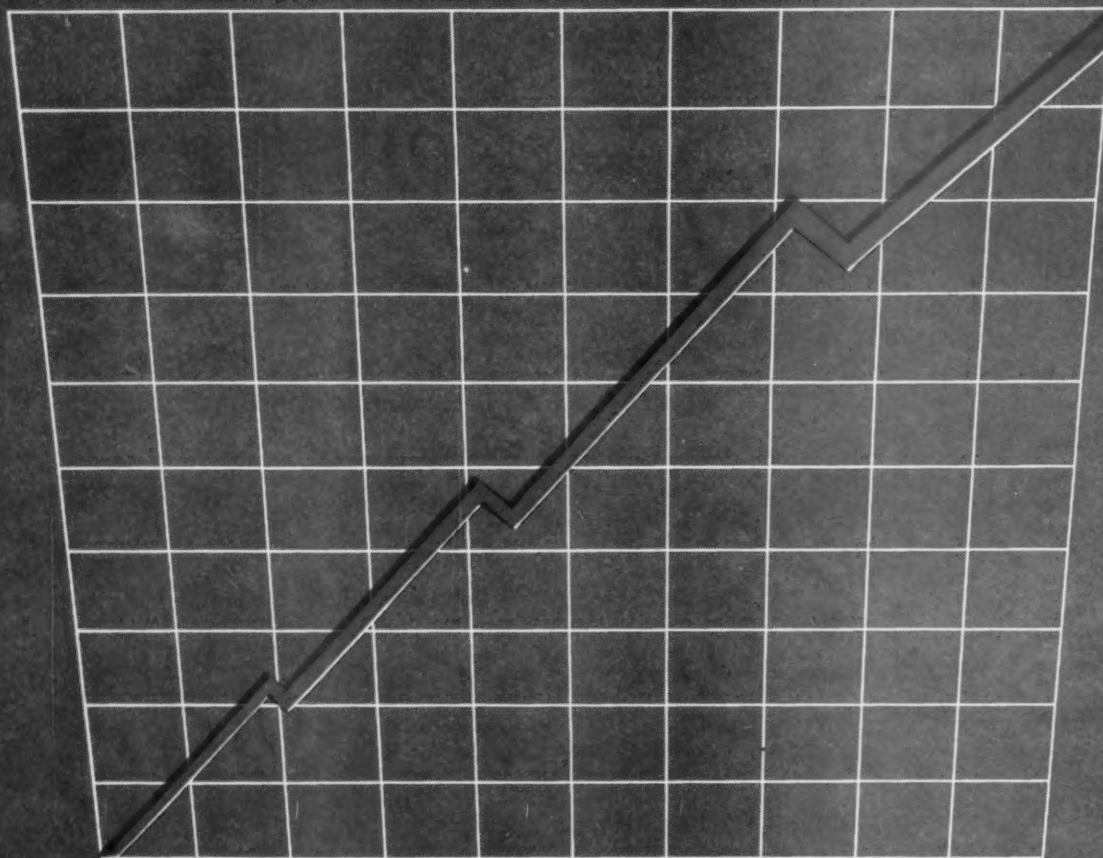
Front cover photo by Brown Bros., New York

PURCHASING is an independent journal not the official organ of any association. It is the only publication of national scope devoted exclusively to the interests and problems of the purchasing executive in industry and government. Established 1915 as "The Purchasing Agent." Consolidated with "The Executive Purchaser."

VOLUME XVII NUMBER 5, 35c per copy, \$3.00 per year, \$5.00 for 2 years. Extra postage for Canadian and foreign subscriptions \$1.00 a year. Contents are indexed weekly and annually by the Engineering Index Service.

Copyright 1944 by Conover-Mast Company in the U.S.A.

MACHINE PRODUCTION RECORD



JOE SWITCHED TO

**TRU-LAY PREFORMED
WIRE ROPE!!**

(Yes — it increases machine production)

AMERICAN CABLE DIVISION

Wilkes-Barre, Pa., Atlanta, Chicago, Denver, Detroit, Houston, Los Angeles, New York,
Philadelphia, Pittsburgh, Portland, San Francisco, Tacoma

AMERICAN CHAIN & CABLE COMPANY, Inc.

BRIDGEPORT • CONNECTICUT



ESSENTIAL PRODUCTS... TRU-LAY Aircraft, Automotive, and Industrial Controls, TRU-LOC Aircraft Terminals, AMERICAN CABLE Wire Rope, TRU-STOP Brakes, AMERICAN Chain, WEED Tire Chains, ACCO Malleable Castings, CAMPBELL Cutting Machines, FORD Hoists, Trolleys, HAZARD Wire Rope, MANLEY Auto Service Equipment, MARYLAND Bolts and Nuts, OWEN Springs, PAGE Fence, Shaped Wire, Welding Wire, READING-PRATT & CADY Valves, READING Steel Castings, WRIGHT Hoists, Cranes . . . *In Business for Your Safety*

BLUE-PRINT FOR POST-WAR PRODUCTION & PURCHASING

PPRICE Administrator Chester Bowles has gone on record, in a memorandum addressed to members of all OPA advisory committees, with a comprehensive statement of policy on reconversion pricing. It is more than a price schedule. From its very inception, the Office of Price Administration has been interested in price not only as a specified monetary figure, but as an economic tool to be used in attaining or avoiding certain economic, social, and industrial conditions ordinarily reflected in prices. The present statement of policy is in that tradition.

Ostensibly it sets a price objective, at the 1942 level. In conceding that fundamental changes have taken place in costs and income ratios as compared with the price-base period, this represents no "return to normalcy", but is rather in the nature of a mold to which production and purchasing must conform as industry seeks to recapture its peace-time markets. It is stated that price controls should be eliminated as rapidly as possible, but only when a balance has been attained under the new conditions. Thus the objective is really a blue-print for business policy.

That blue-print calls for large volume ("maximum capacity") production at low unit profits. It specifically calls for the maintenance of high wage rates to provide public purchasing power, and for a ceiling on the cost of living. Overall company profits are to be considered in the pricing standards, excessively narrow profit margins on some items to be offset by more profitable operation in other lines, and increased costs of materials and labor to be absorbed by mass production economies. This is possible only under conditions of large volume operations, which would at the same time support full employment and a high living standard in terms of goods available.

There is good precedent for successful operation on these standards in many industries. It may be practicable on a national scale, but it will take some retooling of management to bring all business policy into line. Meanwhile it is obvious that the blue-print places a large and immediate responsibility on the Purchasing Agent. Superior value for the customer is predicated on superior value in the materials and tools that manufacturers have to work with. And the search for value is distinctly the province of the purchasing department.

Stuart F. Neimark



When Accuracy is a Must

On the horizon's rim, the enemy maneuvers desperately to elude the conflict. The first salvos must find their marks to assure decisive action.

The range finder brings twin images into sharp coincidence . . . the range is worked into a formula with speed and course, barometric pressure, air temperature and humidity, wind deflection, powder temperature. Within seconds the turrets swing and the huge guns roar . . . the spotter checks the pattern of a perfect salvo, amazing in its accuracy, which initiates another great naval victory.

Accuracy in the manufacture of many products is today accepted almost casually. But intense and constant effort is required to maintain these high standards. Columbia, recognizing the problems of its customers, helps to make their task easier by furnishing chemicals which meet exacting specifications.



PITTSBURGH PLATE GLASS COMPANY
COLUMBIA CHEMICAL DIVISION

GRANT BUILDING • PITTSBURGH 19, PA.

CHICAGO • BOSTON • ST. LOUIS • PITTSBURGH • NEW YORK • CINCINNATI
 CLEVELAND • PHILADELPHIA • MINNEAPOLIS • CHARLOTTE



RIVER TRANSPORTATION of Chlorine has received strong impetus as the result of a new barge designed and perfected by Columbia. Cradling four huge tanks in its 135 foot length, the barge transported 380 tons of Liquid Chlorine on its maiden voyage in September from Natrium to Charleston, W. Va. Formerly, all river shipments had been limited to one-ton containers—a slow and tedious handling method in comparison with the new barge. This is the latest of numerous improvements in the transportation of Chlorine and other chemicals introduced by Columbia.



CHLORINE MARKETS—If you are interested in developments in the manufacture of Chlorine and the probable part this chemical will have in the postwar period, an enlightening analysis is presented in the article published in the August issue of *Chemical & Metallurgical Engineering*, page 115. Included are data on plant expansion and manufacturing methods, new and potential uses of Chlorine.



COLUMBIA RESEARCH—Though they have not been glamorized, the activities of Columbia's Research Laboratories have contributed much to the nation's war effort. Synthetic, natural and reclaimed rubber, textiles, plastics for aircraft, water purification and chemicals for other military uses—these are but a few of the important fields in which this research has played a vital role. And it will have an equally important part in serving the world's needs when peace has been restored.



NO INHIBITORS are required in Columbia's thermosetting plastic, Allymer, to prevent polymerization while in storage. Allymer may be stored under ordinary conditions for several months without appreciable change. This stability eliminates the distillation or washing processes necessary for removal of inhibitors used in older monomers, and facilitates mass shipment and storage. Data and reports of extensive research on Allymer may be obtained on request.



COLUMBIA CHEMICALS include Soda Ash, Caustic Soda, Sodium Bicarbonate, Liquid Chlorine, Silene EF (Hydrated Calcium Silicate), Calcium Chloride, Soda Briquettes, Modified Sodas, Caustic Ash, Phosflake, Calcene T (Precipitated Calcium Carbonate) and Calcium Hypochlorite.

HIGHLIGHTS

**A brief summary of outstanding features
of timely interest and importance in this
issue, to conserve the time of busy readers**



The problem of contract termination has now reached the phase when policies of **Contract Settlement** are of major importance. On page 74, our Washington editor has compiled a comprehensive summary of the essential information on this subject, a guide to the objectives, policies and facilities for prompt and equitable settlements and how to go about using them. A statement by the Director of Contract Settlement, specially prepared for the readers of **PURCHASING**, accompanies the article.

War itself is not responsible for all accumulations of surplus. To a large extent this situation can be traced to the shortcomings of industry itself, and such surplus is avoidable. In a significant and practical article on page 84, John P. Moran lists **Six Reasons for Surplus** as found in the aircraft industry, and the steps that have been taken to correct them.

Here's some sound advice that you might not expect to hear from a practising attorney. When it comes to matters of legal controversy, says Leo T. Parker, you may be better off to **Stay Out of Court**. As usual, in the most approved court manner, he supports his case by citations from recent decisions showing the modern interpretation of law, and demonstrates that there is excellent precedent and binding force in out-of-court settlements. Turn to page 110.

One thing that we can salvage, and ought to salvage from the general ruin of war is our experience gained through dealing with wartime problems. In a timely study starting on page 91, **Eight Lessons We Have Learned from Wartime Purchasing** are analyzed—showing a new approach to the procurement function, new ways of handling purchase routine, new materials that the buyer must consider, new conditions under which buying is done. Don't fail to check up on these points and keep in step with the progress of purchasing.



Continuing his valuable study of plastics and their uses, viewed from the buyer's angle and written in the buyer's language, George Henry presents a summary of the various processes used in **Molding Plastic Products**. This group of materials will play a larger part in post-war product design, and consequently will loom larger on the purchasing schedule. The well-informed Purchasing Agent will need the information given on page 102.

Are you **Interested in Surplus**? And have you found it difficult to get the information about what goods are available? Then you'll find it to your advantage to read the article on page 100, telling exactly how your requests are handled, and how the government lists are compiled and distributed. A feature of this presentation is the table of product classifications and the person to be contacted for each—information of practical reference value to every buyer.

Purchasing Agents are hardened to the campaigns of disparagement that are periodically launched against the buying function. But these attacks ought to be challenged with facts. This time the familiar assertion that the Purchasing Agent's authority is limited to buying "bolts, nuts and nails" comes in a widely publicized statement concerning the petroleum industry, placing the buyer's status considerably lower than that of tool pushers and foremen. **PURCHASING** takes up the challenge and refutes this insinuation with a factual study of buying methods. Turn to page 82, and read **Who Buys for the Petroleum Industry?**



A salesman assigned to pinch hit in the purchasing department of his company, makes the surprising discovery that **P.A.'s Are Human**, and finds in his experience on the buyer's side of the desk some excellent food for thought by sellers and buyers alike. You'll find this story on page 109.

Buyers in special fields have special problems. To meet these special conditions in the field of public buying, a new organization makes its bow—**The National Institute of Governmental Purchasing**. The objectives and program of this well-conceived association and the men who are active in its campaign for better purchasing in the conduct of state, county and municipal business, are presented on page 79.

Don't overlook those monthly departmental features compiled especially for purchasing men—the **Washington Letter** on page 57, with its timely and authoritative preview of official trends on matters affecting industry, as gathered by our Washington office; the listing of **Know-How Information**, that is yours for the asking, appearing on page 10; and the illustrated summary of **New Products and Ideas** that are now available for the industrial buyer (page 118), providing a quick and convenient means of keeping up to date on recent developments in industrial products.



save time and money

use the RIGHT bar

When specifications call for bar steel, phone Ryerson. You'll save time, trouble and money—get the bar exactly right for your job—because Ryerson stocks include practically every shape and size of bar, in practically every analysis of steel now available. Whether its straight carbon or alloy, hot rolled, cold finished or heat treated, Ryerson has the right bar in nearby stock and will ship at once.

Why go elsewhere when the nation's largest steel stocks are your surest source for just the bar you need.

If you have a question of steel selection or application, experienced Ryerson metallurgists

and engineers will be glad to work with you. There is no obligation. Inquiries as well as orders receive prompt attention.

Ryerson Bar Stocks Include:

Aircraft Alloys	Forging Quality	High Carbon	Round Edge
Allegheny Stainless	Free Cutting	Hot Rolled	Screw Steel
Alloy	Gagger Bars	Mild Steel	Shafting
Bevel Edge	Galvanized	NE Alloys	Spring Steel
Carbon Steel	Hexagons	Octagons	Stainless
Coal Screen	Half Ovals	Ovals	Stressproof
Cold Finished	Half Rounds	Pickled	Steel
Cold Twisted	Heat Treated	and Oiled	Threaded
Forged	Hi-Steel	Reinforcing	Tool Steel

Shapes, Plates, Sheets, Tubes and many other steel products are also in stock for quick shipment.

JOSEPH T. RYERSON & SON, INC. Plants: Chicago, Milwaukee, Detroit, St. Louis, Cincinnati, Cleveland, Pittsburgh, Philadelphia, Buffalo, New York, Boston.

RYERSON STEEL-SERVICE

The Western Purchasing Agent

By **GEORGE S. DRURY**

Vice President, District No. 1
National Association of Purchasing Agents.



THE wartime Purchasing Agent of the West Coast, has been no more or no less busy than his purchasing brother in other strategic parts of the United States and Canada. Whether this condition will prevail following the defeat of Germany and before the defeat of Japan remains to be seen. With an all-out war against the Japanese to be waged perhaps a year or more following the capitulation of our enemies in Europe, any easing up of restrictions of war time production may be noticed first in those parts of the country that are farthest removed from the theatre of operations.

If this should happen, the Purchasing Agent on the Pacific slope may find himself in a position of not only purchasing for wartime conditions on one hand, but of keeping mentally alert toward watching peace time economic changes being made in other parts of the country, on the other. Undoubtedly it will not be until a successful termination of the war with the Nipponese that the West Coast Purchasing Agent will be able to take full advantage or even realize the possibilities of material, equipment and supplies that have undergone a "face lifting" in the trial and performance test due to war's necessity, that will allow him to procure better and cost-saving items from sources of supply much closer than was possible during the pre-war period.

With post-war planning already being developed to a considerable extent in major industries through-

out the country, and war production plants on the Pacific Coast taking an active part in such forward planning, it can be expected that following hostilities these plants will turn to production of civilian and peace economy goods that have heretofore never been produced in the Western part of the country.

If we can believe the reports of officials in high positions that China and Russia will be large potential markets for our goods after the war, and the West Coast being the nearest possible route to the Far East, this alone should be reason enough for such concerns to convert to the manufacture of articles that have normally been produced in the East and middle West and to bring other manufacturers from those localities that have considered themselves nearer the center of population and potential markets.

Such a development would be a boon to the Western Purchasing Agent in securing his requirements. Transportation costs would be materially reduced, time of delivery cut to a minimum, thereby eliminating heavy inventories and too far forward buying. Sources of supply could be visited, and the P. A. be-

Continued on page 350



CONTRACT SETTLEMENT

Reviewed by

PURCHASING'S WASHINGTON EDITOR

THE Office of Contract Settlement is top policy making organization in process of winding up government contracts. It was established at the recommendation of Bernard M. Baruch.

Over-all policy is attainment of speed in settlement; uniformity of policy, while maintaining fairness to the Government and the contractor.

Of greatest importance in attaining these objectives is preparedness by the contracting agency and the contractor to negotiate settlement

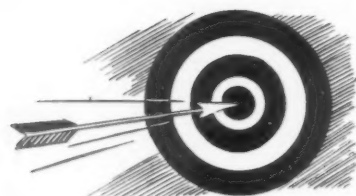
and to carry out the physical terms of settlement quickly. To this end, it is paramount that settlement be planned in advance, both in its broad terms and in fine detail such as the disposition of Government owned equipment.

The law provides that the contracting agency conform to certain standards of speed in removal of property, and also gives specific aids in settlement. These can be of limited value unless settlement is ad-

equately planned and entered into with good will by the Government and the contractor. The various agencies of the Government have indicated a spirit of give and take, and assert a willingness to speed their negotiations faster than the minima established by the regulation.

In view of the importance of Contract Settlement to the Purchasing Agent, who will bear the brunt of the problem, a detailed presentation of policy and regulation follows.

The Objectives...



(a) To facilitate maximum war production during the war, and to expedite reconversion from war production to civilian production as war conditions permit.

(b) To assure to prime contractors and subcontractors, small and large, speedy and equitable final settlement of claims under terminated war contracts, and adequate interim financing until such final settlement.

(c) To assure uniformity among

Government agencies in basic policies and administration with respect to such termination settlements and interim financing.

(d) To facilitate the efficient use of materials, manpower, and facilities for war and civilian purposes by providing prime contractors and subcontractors with notice of termination of their war contracts as far in advance of the cessation of work thereunder as is feasible and con-

sistent with the national security.

(e) To assure the expeditious removal from the plants of prime contractors and subcontractors of termination inventory not to be retained or sold by the contractor.

(f) To use all practicable methods compatible with the foregoing objectives to prevent improper payments and to detect and prosecute fraud.

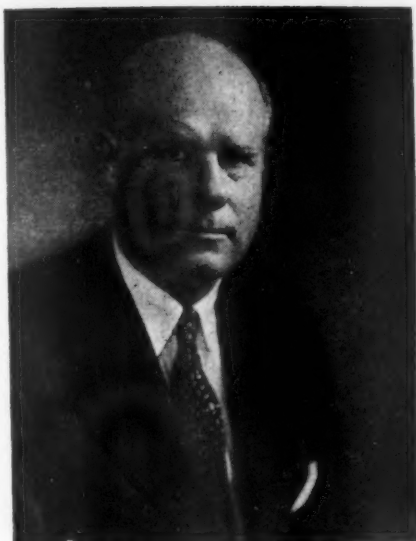
The Law...

(Excerpt from Document No. 224, Senate, Domestic Stability, National Defense, and Prosecution of World War II)

THE War Contract Settlement Act of 1944 was passed by Congress on June 22 and approved by the President on July 1. Provision was made for setting up the Office of Contract Settlement with a Director and a Contract Settlement Advisory Board composed of the Secretary of the Navy, Secretary of War, and heads of various other agencies, to prescribe procedure, policies,

standards, and principles to govern all Government agencies under this act. The Director is authorized to appoint an Appeal Board to hear appeals from contract decisions of the various agencies. Each Government contracting agency shall establish methods for the determination of fair compensation in settlement of contracts and is authorized to settle all or any part of a contract by agree-

ment with the contractor or by determination of the amount due on the contract. Contract settlements in excess of \$50,000 are subject to review by a board of three or more members established by the contracting agency. Contractors are provided aids in adequate interim financing and partial payment of termination claims may be made or guaranteed through Federal Reserve



...The Policies

By ROBERT H. HINCKLEY

Director of Contract Settlement

Mr. Hinckley is a former Assistant Secretary of Commerce, and came to his new assignment from the Sperry Corporation, where he served as Vice President

THE settlement of terminated war contracts must go on quickly regardless of the progress of the war. Without having the terminated contracts settled, it is not possible to reconvert our industrial capacity for additional war work and for such civilian uses as the needs of war permit.

The contracting services of the Armed Forces have made a good start on the difficult problem of contract settlement but there is still much to be done to assure greater speed, greater uniformity, fairness to contractors, large and small, as well as the protection of the interests of the government. Speed and uniformity cannot be overemphasized. The Office of Contract Settlement has these objectives constantly before it.

The Office of Contract Settlement does not settle contracts—that is the responsibility of the contracting agencies. The primary functions of the Office of Contract Settlement are to insure uniform and efficient administration of the Contract Settle-

ment Act by general orders or general regulations which

(1) shall prescribe policies, principles, methods, procedures, and standards to govern the exercise of the authority and discretion and the performance of the duties and functions of all government agencies under this Act; and

(2) may require or restrict the exercise of any such authority and discretion, or the performance of any such duty or function, to such extent as he deems necessary to carry out the provisions of this Act.

Contracting agencies and contractors are already becoming increasingly aware of the need of preparing now to plan for the settlement of terminated war contracts and to make adequate preparations to absorb the added load that will inevitably follow victory over Germany.

To date, the Office of Contract Settlement has issued general regulations covering termination loans (T-Loans), partial payments to war

contractors whose contracts have been terminated, pre-termination agreements, plant clearance regulations and others to facilitate speedy, uniform and fair settlement.

Through the cooperation of a number of contracting agencies and with the advice of a subcommittee of the Bureau of the Budget's committee on government forms, standard forms to be used for the settlement of terminated fixed price (lump sum) supply contracts, approved by all government agencies concerned, are now available from the procurement services of the Armed Forces and Maritime Commission at local offices throughout the country.

These are all tangible steps to which others will be added in the future to help meet the needs of the situation. With the cooperation of war contractors, large and small, with increased uniformity in forms, regulations and procedure and with the will to do the job comparable to the will that is winning the war for us, the job will be done.

banks or other private financial institutions. Adequate advance notice to the contractor of contract termination is here included. Upon demand by the contractor the agency concerned is required within 90 days to submit an estimate of the amount due under the terminated contract and to make a settlement of at least 90 percent within 30 days after delivery of the estimate. In cases of dissatisfaction, contractors may appeal to the Appeal Board or bring

suit before the Court of Claims or a United States district court under certain limitations. The General Accounting Office is confined to determining after final settlement whether settlement payments to the war contractor have been in accordance with the settlement and whether the records or information transmitted to it warrant a reasonable belief that the settlement was induced by fraud. If the General Accounting Office finds a reasonable belief of

fraud warranted it may so certify to the Department of Justice for investigation. Penalties for fraud are included within the provisions of this act. This act was passed after considerable revision and extensive committee hearings including all interested parties from industry and government (Public Law 395, 78th Cong.).



Pre-Termination Settlement Agreements...

(General Regulation No. 3)

ANY department or agency of the Government may embody in any contract a special agreement to pay the contractor, as fair compensation for the termination of the contract, amounts specified in the contract or to be readily computed according to specific methods, standards or bases appropriate to the particular contract and set out therein, in lieu of any other compensation therefor, whenever the department

or agency determines (1) that the available data permits a reasonable forecast, consistent with sound commercial standards, of the factors involved in determining what will be fair compensation for termination in the case or class of cases and (2) that such agreement will substantially facilitate settlements, plant clearance, reconversion from war to civilian production or the efficient use of materials, manpower and fa-

cilities or will otherwise promote the objectives of the Contract Settlement Act of 1944. Such special agreements may be included in original contracts or may be inserted in contracts by amendment made before their termination; and, when so included or inserted, are hereby determined to provide a method for determining fair compensation for the termination of such contracts.

Partial Payments...

(Excerpt from General Regulation No. 2)

1. Immediate Partial Payments Based on Contractors' Estimates.

(a) Contracting agencies shall make immediate partial payments for the benefit of any war contractor, whether prime contractor or subcontractor, promptly upon the filing of application therefor. Contracting agencies should promptly grant the request for partial payment in the largest amount believed reasonable under all the circumstances then known, but such amount shall not exceed 90% of the amount certified in the application as due on account of the contractor's own costs allocable to the terminated portion of the contract. In deciding the amount to be paid, the contractor's application should be considered in the light of the general reputation of the contractor and other relevant factors. Contracting agencies should authorize personnel making partial payments to base their determination of the amount to be paid solely on the contractor's application unless there is knowledge of other relevant factors militating against such payment.

(b) An immediate partial payment will be made in each case in an amount not less than 75 per cent of the contract price of completed articles not delivered, plus 75 per cent of the contractor's estimated costs of raw materials, purchased parts, supplies, direct labor and overhead allocable to the terminated portion of a contract (but not including the cost of special facilities or other items deemed likely to be of a controversial character, and not including profit),

unless (1) the contracting agency has reason to believe that the application for immediate partial payment was not filed in good faith, or that the amount requested is excessive, or that protection of the Government's interests requires denial of the application or payment in a lesser amount, or (2) unless the contractor requests payment in a lesser amount. This provision for minimum partial payments shall not be construed to limit the responsibility of the contracting agencies to make partial payments in the largest amount believed reasonable.

2. Cost-Supported Partial Payments. When the contractor has submitted substantial accounting data, and a preliminary review thereof indicates that the application is proper and is supported by the data submitted, the contracting agency, to the extent requested, shall make an addition partial payment, or if none has previously been made, a partial payment, in an amount which, together with any other partial payments previously made on the same termination claim, equals:

(a) An amount equal to 100 per cent of the amount payable, at the contract price, on account of acceptable items completed prior to the termination date under the terms of the contract, or completed thereafter with the approval of the contracting agency; plus

(b) An amount equal to 90 per cent of the cost of raw materials, purchased parts, supplies, direct la-

bor, and manufacturing overhead allocable to the terminated portion of the war contract; plus

(c) A reasonable percentage of other allowable costs, including administrative overhead, allocable to the terminated portion of the war contract not included in the foregoing; plus

(d) Such additional amounts, if any, as the contracting agency deems necessary to provide the war contractor with adequate interim financing.

The amount to be paid under subparagraphs (a)-(d) above should not be greater than the amount which, in the opinion of the contracting agency after such a preliminary review, is due to the contractor by reason of the termination.

3. Controlled Partial Payments. When a war contractor requesting or forwarding an application for a partial payment, is deemed to be insolvent or in imminent danger of insolvency, or when an application for immediate partial payment has been in whole or in part denied, partial payments may be deposited in a special account. Partial payments deposited in special accounts will be released as particular items of cost or payments to subcontractors are approved. The interest of the Government in such controlled accounts shall be protected by such methods as the contracting agency considers advisable. Additional payments may be made, from time to time, into the controlled account by the contracting agency.



... The Forms

Form 1
Office of Contract Settlement
SETTLEMENT PROPOSAL
For Use by Prime Contractor or Subcontractor Under Terminated Fixed-Price War Supply Contract

This proposal applies to (check one):
☐ A prime contract with the Government, or
☐ Subcontract or purchase order No(s): _____

Contract No. _____
Contract title: _____
Contract address: _____
Contract date: _____
Contract termination date: _____
Contract termination reason: _____
Contract termination effective date: _____

Yes ☐ No ☐ This is proposed No. _____ under this termination and is deemed to be ☐ interim, or ☐ final. (Check one)

Contract or order at effective date of termination

Contract or order at effective date of termination	Proposed settlement	Unsettled or not submitted	Total amount by contract or order
Contract or order at effective date of termination	Proposed settlement	Unsettled or not submitted	Total amount by contract or order

PROPOSED SETTLEMENT

Contract or order at effective date of termination	Proposed settlement	Unsettled or not submitted	Total amount by contract or order
Contract or order at effective date of termination	Proposed settlement	Unsettled or not submitted	Total amount by contract or order

CERTIFICATE

I, the undersigned, certify that the above information is true and correct to the best of my knowledge and belief, and that the same has been reviewed and approved by the Government Agency.

Contracting Officer

Form 1a
Office of Contract Settlement
SHORT FORM SETTLEMENT PROPOSAL
For Use by Prime Contractor or Subcontractor Under Terminated Fixed-Price War Supply Contract

This proposal applies to (check one):
☐ A prime contract with the Government, or
☐ Subcontract or purchase order No(s): _____

Contract No. _____
Contract title: _____
Contract address: _____
Contract date: _____
Contract termination date: _____
Contract termination reason: _____
Contract termination effective date: _____

Yes ☐ No ☐ This is proposed No. _____ under this termination and is deemed to be ☐ interim, or ☐ final. (Check one)

Contract or order at effective date of termination

Contract or order at effective date of termination	Proposed settlement	Unsettled or not submitted	Total amount by contract or order
Contract or order at effective date of termination	Proposed settlement	Unsettled or not submitted	Total amount by contract or order

Form 1b
Office of Contract Settlement
SETTLEMENT PROPOSAL (TOTAL COST BASIS)
For Use by Prime Contractor or Subcontractor Under Terminated Fixed-Price War Supply Contract

This proposal applies to (check one):
☐ A prime contract with the Government, or
☐ Subcontract or purchase order No(s): _____

Contract No. _____
Contract title: _____
Contract address: _____
Contract date: _____
Contract termination date: _____
Contract termination reason: _____
Contract termination effective date: _____

Yes ☐ No ☐ This is proposed No. _____ under this termination and is deemed to be ☐ interim, or ☐ final. (Check one)

Contract or order at effective date of termination

Contract or order at effective date of termination	Proposed settlement	Unsettled or not submitted	Total amount by contract or order
Contract or order at effective date of termination	Proposed settlement	Unsettled or not submitted	Total amount by contract or order

Form 2a
Office of Contract Settlement
TERMINATION INVENTORY SCHEDULE—METALS (In Mill Product Form)

This schedule applies to (check one):
☐ A prime contract with the gov., or ☐ Subcontract(s) or purchase order(s)

Contract No. _____
Contract title: _____
Contract address: _____
Contract date: _____
Contract termination date: _____
Contract termination reason: _____
Contract termination effective date: _____

Yes ☐ No ☐ This is proposed No. _____ under this termination and is deemed to be ☐ interim, or ☐ final. (Check one)

Contract or order at effective date of termination

Contract or order at effective date of termination	Proposed settlement	Unsettled or not submitted	Total amount by contract or order
Contract or order at effective date of termination	Proposed settlement	Unsettled or not submitted	Total amount by contract or order

Form 2b
Office of Contract Settlement
TERMINATION INVENTORY SCHEDULE—OTHER THAN METALS

This schedule applies to (check one):
☐ A prime contract with the gov., or ☐ Subcontract(s) or purchase order(s)

Contract No. _____
Contract title: _____
Contract address: _____
Contract date: _____
Contract termination date: _____
Contract termination reason: _____
Contract termination effective date: _____

Yes ☐ No ☐ This is proposed No. _____ under this termination and is deemed to be ☐ interim, or ☐ final. (Check one)

Contract or order at effective date of termination

Contract or order at effective date of termination	Proposed settlement	Unsettled or not submitted	Total amount by contract or order
Contract or order at effective date of termination	Proposed settlement	Unsettled or not submitted	Total amount by contract or order

Form 2c
Office of Contract Settlement
TERMINATION INVENTORY SCHEDULE—WORK IN PROCESS

This schedule applies to (check one):
☐ A prime contract with the gov., or ☐ Subcontract(s) or purchase order(s)

Contract No. _____
Contract title: _____
Contract address: _____
Contract date: _____
Contract termination date: _____
Contract termination reason: _____
Contract termination effective date: _____

Yes ☐ No ☐ This is proposed No. _____ under this termination and is deemed to be ☐ interim, or ☐ final. (Check one)

Contract or order at effective date of termination

Contract or order at effective date of termination	Proposed settlement	Unsettled or not submitted	Total amount by contract or order
Contract or order at effective date of termination	Proposed settlement	Unsettled or not submitted	Total amount by contract or order

Form 3
Office of Contract Settlement
SCHEDULE OF ACCOUNTING INFORMATION

This proposal applies to (check one):
☐ A prime contract with the Government, or
☐ Subcontract or purchase order No(s): _____

Contract No. _____
Contract title: _____
Contract address: _____
Contract date: _____
Contract termination date: _____
Contract termination reason: _____
Contract termination effective date: _____

Yes ☐ No ☐ This is proposed No. _____ under this termination and is deemed to be ☐ interim, or ☐ final. (Check one)

Contract or order at effective date of termination

Contract or order at effective date of termination	Proposed settlement	Unsettled or not submitted	Total amount by contract or order
Contract or order at effective date of termination	Proposed settlement	Unsettled or not submitted	Total amount by contract or order

Form 3a
Office of Contract Settlement
TERMINATION INVENTORY SCHEDULE (Dies, Jigs, Fixtures, etc., and Special Tools)

This schedule applies to (check one):
☐ A prime contract with the gov., or ☐ Subcontract(s) or purchase order(s)

Contract No. _____
Contract title: _____
Contract address: _____
Contract date: _____
Contract termination date: _____
Contract termination reason: _____
Contract termination effective date: _____

Yes ☐ No ☐ This is proposed No. _____ under this termination and is deemed to be ☐ interim, or ☐ final. (Check one)

Contract or order at effective date of termination

Contract or order at effective date of termination	Proposed settlement	Unsettled or not submitted	Total amount by contract or order
Contract or order at effective date of termination	Proposed settlement	Unsettled or not submitted	Total amount by contract or order

1. Settlement Proposal — Fixed Price Contract

1a. Settlement Proposal — Short Form

1b. Settlement Proposal — Total Cost Basis

2a. Inventory Schedule — Metals

2b. Inventory Schedule — Other Parts

2c. Inventory Schedule — Work in Process

2d. Inventory Schedule — Dies and Tools

3. Schedule of Accounting Information

T-Loans...

(Policy as stated in General Regulation No. 1)

1. Termination loan (hereinafter called T-Loan) guarantees should not be refused by the contracting agency having the preponderant interest in the borrower's war contracts if the borrower is or has been engaged in performing an operation connected with or related to war production, except in such classes of cases as may be prescribed by the Director. The borrower's certification of his investment in termination inventories and receivables and of the amounts payable to subcontractors should not be questioned by the Federal Reserve Bank or the contracting agency unless there is reason to believe that it is substantially overstated in value. Financing institutions should be encouraged to make unguaranteed production and termination loans, and the fact that a financing institution has made such an unguaranteed loan shall not affect its right subsequently to apply for a T-Loan guarantee, even if the proceeds of the T-Loan are used to retire the existing loan.

2. If a contracting agency which utilizes the Federal Reserve Banks as fiscal agents for T-Loan guarantees has local representatives in connection therewith, it should delegate

to such banks authority to approve, after consultation with and in the absence of objection by such representatives, all applications for guarantees of loans totaling (a) \$500,000 or less to any one borrower when the requested percentage of guarantee is not in excess of 90 per cent, and (b) \$100,000 or less to any one borrower when the requested percentage of guarantee is not in excess of 95 per cent. Any such contracting agency which does not have such local representatives will provide them in the localities where, and at the times when, it is determined that they are required, in the light of its prospective volume of contract terminations and after consultation with the Director, and in the absence of such representatives should delegate such authority to the Reserve Banks as is necessary to insure prompt processing of applications for and execution of guarantees.

3. Conditions other than those required under the standard loan agreement should be prescribed by the contracting agencies or the Federal Reserve Banks only, in exceptional circumstances and when they are clearly necessary to protect the Government's interest. Additional

conditions agreed upon by the borrower and the financing institution, if not unreasonable and not inconsistent with the standard loan agreement, should not be objected to by the contracting agency or the Reserve Banks.

4. The requested percentage of guarantee should not ordinarily be questioned by the Federal Reserve Bank or the contracting agency if it does not exceed 90 per cent; and a contracting agency should not authorize a percentage of guarantee in excess of 90 per cent, or 95 per cent in the case of small loans, unless the circumstances clearly justify the financing institution in requesting it and other means of interim financing are not promptly available.

5. In general, the percentages in the loan formula certificate agreed upon by the financing institution and the borrower should not be questioned by the Federal Reserve Bank or the contracting agency. After consultation with the Board of Governors of the Federal Reserve System, the contracting agencies will, to the extent practicable, specify general criteria or standard maximums which may be employed in typical classes of cases.

Plant Clearance...

(Excerpt from Regulation No. 4)

1. *General Policies.* It shall be the policy of the owning agencies of the Government to assure the orderly and expeditious removal from the private plants of war contractors of Government-owned machinery, tools and equipment (hereinafter called "plant equipment") which, by reason of termination of war contracts at the option, or for the convenience, of the Government or otherwise are no longer required by the contractors for war production or for the national defense and which are not to be retained by them.

2. *Procedure for plant clearance.* Whenever a war contractor is of the opinion that he no longer requires for the performance of any war contract any plant equipment installed in his plant covered by an option to purchase or lease which he

is then entitled to exercise, he will promptly notify the owning agency whether he desires to exercise the option or is willing to waive it. If he indicates that he desires to exercise the option and the owning agency determines the option provisions are operative, disposition will be made accordingly.

With respect to plant equipment which the war contractor considers no longer required for war production, (i) not covered by such an option, or (ii) covered by an option which the war contractor is willing to waive, he will promptly submit to the owning agency:

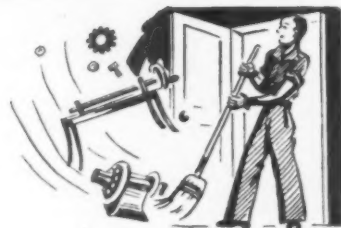
(i) a list of the plant equipment, adequately itemized and described, showing:

(a) the plant equipment which the war contractor desires to retain;

(b) the plant equipment which, in the opinion of the war contractor, must be removed from its then location in order to make room for other production (specifying the production for which the space occupied by this plant equipment is immediately needed); and

(ii) a statement of the amount of space that is or can be made available, in the plant or plants of the war contractor or elsewhere in the vicinity, for the temporary storage of plant equipment; and

(iii) a statement of whether the war contractor can arrange to use his own personnel to dismantle and prepare plant equipment for removal and shipment, or intends to use outside contractors for this purpose.



Governmental Purchasers Organize For Service

National Institute of Governmental Purchasing, Inc., announces policies and program following executive session in Milwaukee.

By ALBERT H. HALL



President Holm chats with Virgil H. Hurless (left), Director of the Priorities Division, City of Milwaukee, and Willis S. MacLeod, special assistant in the WPB Office of Civilian Requirements.



THE governmental purchasing agencies of the United States and Canada spend hundreds of millions of dollars annually for supplies, materials and equipment. The efficient, professional expenditure of these huge sums of governmental buying agencies obviously has far-reaching and beneficial effects on government and business. It is equally obvious that inefficient use of such funds is harmful not only to the governmental unit directly affected, but also to the whole social and economic structure.

A desire to promote efficient, professional purchasing by governmental buying agencies has led to the creation of the National Institute of Governmental Purchasing, Incorporated.

What The Institute Is

The Institute, incorporated under the laws of the State of Wisconsin, is a non-profit educational and technical organization of the governmental buying agencies of the United States and Canada. It is devoted to the further development

and professionalization of the field of governmental buying. Its objects are to improve the organization and administration of governmental buying through:

- a) A regular and systematic interchange of information and experience among governmental buying agencies.
- b) Consultation with legislative bodies, departments of government and others on legislation and problems affecting governmental purchasing.
- c) Stimulation of and advisory assistance in the preparation of in-service training materials and programs for governmental buying agencies.
- d) Development and promotion of simplified standards and specifications for governmental buying.
- e) Developing and furnishing information regarding uniform laws and procedures for governmental buying and for the disposition of surplus or obsolete supplies, materials and equipment.
- f) Promotion of public understanding and support of profession-

al governmental buying.

g) Continuous research in the organization and administration of centralized governmental buying agencies.

h) Issuance of certificates and awards for merit and proficiency in governmental buying.

i) Other activities having a bearing on the professionalization of governmental buying.

The Institute is a service organization dedicated to improved governmental buying. Efficient and economical buying is the goal for which every governmental purchasing agency is striving. The Institute, through its various services, aims to assist each member agency to reach this goal.

The Institute is an agency which enables its membership, as a unit or in groups, to study, discuss and recommend improvements in governmental purchasing; to interchange ideas and experiences and obtain expert advice on local, state and national governmental purchasing problems; to collect and distribute to governmental purchasing

officials information on the organization and administration of governmental buying; to develop and promote simplified standards and specifications; to promote uniform purchasing laws and procedures; to work for or against proposals affecting the welfare of governmental buying agencies; to give to taxpayers information on governmental buying problems in order to foster interest in public affairs and cooperation between governmental buyers and those they serve; and to do any and all things necessary for the benefit of its members.

The Institute is always ready for immediate action. It does not fix or attempt to fix the policies of its members on any matter. The member agencies determine and fix the policies of the Institute. The Institute simply carries out the will and instructions of its members.

The Institute cooperates, on a professional basis, with all public bodies and departments and private groups and organizations in working toward its fundamental professional objectives. However, the Institute and its staff are limited by its articles of organization in certain relationships with commercial groups. The Institute may not accept advertising of any kind in its publications or programs. Funds from advertising, or other commercial sources may not be received by the Institute. Commercially provided entertainment is prohibited at official meetings. The Institute may permit commercial exhibits at official meetings conducted or sponsored by it under regulations of its Board of Directors.

The governmental purchasing agency is the basis of membership and each is represented in the Institute by its head or his designated representative. Governmental purchasing agencies eligible for Institute membership include Federal procurement agencies and the buying agencies of states, counties, cities, villages, towns, boroughs,

provinces, publicly-owned utilities, public schools and colleges, prisons, governmental hospitals and other institutions, other tax-supported buying organizations and public authorities and similar ad hoc agencies.

Each Institute member receives an engrossed Certificate of Membership signed by the President and the Secretary of the Board.

The schedule of assessments for the support of Institute activities is based on the population of the governmental jurisdictions served by member governmental purchasing agencies.

The governing body of the Institute is a Board of Directors of eleven members. The Board establishes policies, provided for general administration and prepares and enforces rules for the operation of the Institute.

The following distinguished governmental buying officials constitute the membership of the Board: Alvin J. Holm, President, City Purchasing Agent, Los Angeles, California; Albert Pleydell, Vice-President, Commissioner of Purchase of the City of New York; Joseph W. Nicholson, Vice-President, City Purchasing Agent, Milwaukee, Wisconsin; Harold F. Burnworth, Treasurer, Director, Department of Supplies, Pittsburgh, Pennsylvania; L. G. Baker, Chief Purchasing Agent, University of California, Berkeley, California; H. D. Van Eaton, Supervisor of Purchasing, State of Washington, Olympia, Washington; Herbert D. Fearman, City Purchasing Agent, Hamilton, Ontario, Canada; David H. Marbury, City Purchasing Agent, Birmingham, Alabama; Charles F. McCauley, Director of Purchases, Board of Auditors of Wayne County, Detroit, Michigan; W. Howard Williams, Purchasing Agent, Department of Finance, Division of Purchases and Stores, State of Alabama, Montgomery, Alabama; Seibert W. Mote, Purchasing Agent, Univers-

ity of Utah, Salt Lake City.

The officers of the Institute are the officers of the Board and are elected at the annual meeting by vote of the members. A President of the Institute becomes an Honorary President thereof upon his retirement as President. Honorary Presidents serve as ex-officio members of the Board for a term of one year immediately following their retirement as President.

An Executive Director is appointed by the Board of Directors. Executive direction of the Institute is in his hands. He is also an ex-officio non-voting member of and Secretary to the Board. The Executive Director is Albert H. Hall, Washington, D. C.

The Board elects annually an Executive Committee composed of the President, two Vice-Presidents, Treasurer and one other director. The President, or in his absence either of the Vice-Presidents, is chairman and the Executive Director is Secretary of the Committee. In intervals between Board meetings, this Committee transacts such Institute business as the Board may authorize.

The President may appoint such other Committees as he may deem necessary for the proper functioning of the Institute.

The Board may establish and fix the territory embraced by Regional Chapters of the Institute. Membership in Regional Chapters is on an individual basis, but is restricted to heads or designated representatives of Institute members. The Board may also approve the affiliation of organizations whose membership is composed of purchasing agents and buyers employed by members.

The Institute holds an annual meeting at which all problems of interest to its members are discussed. Consideration is given particularly to the essential features of efficient governmental purchasing departments, systems and services.

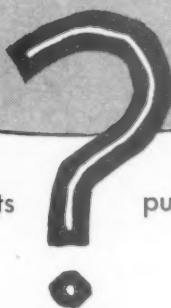
Continued on page 350

EXECUTIVE COMMITTEE AT MILWAUKEE

Left to right: D. H. Marbury, Birmingham; J. W. Nicholson, Milwaukee; H. D. Fearman, Hamilton; H. F. Burnworth, Pittsburgh; President A. J. Holm, Los Angeles; Albert Pleydell, New York; C. F. McCauley, Detroit; Executive Director A. H. Hall, Washington.



TO PAY OR NOT TO PAY



Navy procurement's disbursing unit audits

purchases and invoices within 0.0000055%

THE Certification and Disbursing Division of the Bureau of Supplies and Accounts of the U. S. Navy is the watch-dog of Naval supply expenditures. Headed by Commander W. J. McNeil, a reserve officer of the Navy Supply Corps who spends more money by check than anyone else in the world, this Division examines every contract to prove the legality and propriety of payment. By carefully tracing each penny, it practices the Navy rule that no matter how extenuating the circumstances are, there must always be good stewardship and strict accountability of public funds.

The circumstances in this fast-moving global war are often very "extenuating."

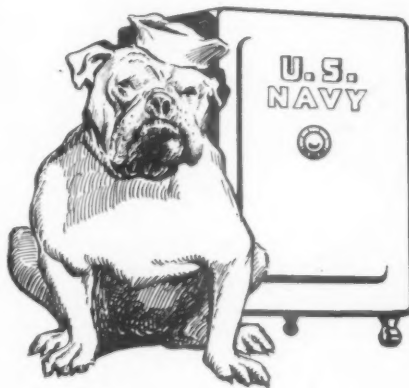
For instance, there is "The Case of the 21 Unnamed Ships," a financial mystery that reads like a chapter from Sherlock Holmes. This story, taken from Bureau records, illustrates how even the most emergent supply transactions are thoroughly checked from every angle before the Navy pays the bill.

The record opens in the days immediately following Pearl Harbor, when the 21 ships took on 78,872 barrels of fuel oil from the N. V. Bataafsche Petroleum Maatschappij, a subsidiary of the Asiatic Petroleum Corporation situated at Balikpapan, Borneo.

The demand for speed and secrecy was then so great that the suppliers could not furnish the names of the ships. In addition, economic conditions were so chaotic in the Dutch Indies at that time that the question of price was left for future settlement. The important thing was to

get the ships refueled, so they could smash back at the rampant Japs. This was done in expeditious fashion, and the ships sped out to score the first naval victories of the war.

In January of 1942, Asiatic Petroleum submitted a bill for more than \$100,000 to the Bureau of Supplies and Accounts, covering "78,-



872 barrels for 21 unnamed ships." Because it never pays an unsubstantiated bill, the Bureau put its Certification and Disbursing Division to work getting the facts together.

By contacting the company's London office and obtaining copies of numerous cables, it was ascertained that all the oil had been delivered at Balikpapan. The Division then compiled a list of all US Naval vessels which might have touched Balikpapan during the period. Logs and fuel reports of these vessels were checked. Supply and disbursing officers of many ships were interviewed in person and by mail, to ascertain if they had paid directly. To check on smaller ships, which pay their bills through designated shore

stations, the Division contacted Fremantle, Australia, and made sure that station had not and would not pay any portion of the bill.

As an additional precaution, the Division examined the Philippine Treasury check records which were transmitted by submarine from Corregidor. Finally, when all obtainable facts were in, the Division was satisfied that all the oil had been delivered, and no bills had been paid.

To assure a settlement that would be fair to the supplier and the Government, the Division then consulted with the Fuel Division of the Bureau. Several members of the Fuel Division had recent experience with companies handling oil in the Indies, and they agreed that Asiatic's billing price was equitable. As a result of these findings, the Division paid the bill in full.

Investigations such as this often have a different ending. In the haste of getting "what's needed, where it's needed, when it's needed" honest errors sometime occur, and there is an occasional unjustified charge.

It is the responsibility of the Certification and Disbursing Division to see that these items are caught before they are paid and before they are audited by the General Accounting Office, the independent governmental agency which scrutinizes all public expenditures.

The efficiency of the Navy's check is proved by the fact that of 11 billion dollars in Bureau wartime expenditures already audited by the G. A. O., the recovery of only approximately \$60,000 is attributable solely to that office. This represents a possible error or difference

Continued on page 340

WHO BUYS FOR THE PETROLEUM INDUSTRY?

statistics: systematic compilation of instances
for the inference of general truths.
—Webster's New International Dic-
tionary.

BEING avid in the search for all available information concerning industrial purchasing methods and policies, we were very much interested to run across the following paragraph in our recent reading. It was part of the advertisement of a reputable contemporary, a business journal addressed to the petroleum and natural gas industry and reaching 10,303 superintendents and foremen, tool pushers, engineers, officials in charge of operations, contractors, drillers, chemists, field workers, manufacturers and supply dealers every month. It appeared in the pages of another reputable contemporary, a journal devoted to matters of industrial marketing. It said:

"The responsibility for specifying, buying and applying equipment and materials in construction, production, operation and maintenance may vary in each division. But throughout, it's the Engineers, Superintendents and Foremen who count the most. In some small companies, operating officials also specify and buy. *Purchasing agents are responsible for requisitioning engineer-approved materials and staple items such as bolts, nuts, and nails.*"¹

The subject is developed at some length in succeeding paragraphs, but in this exhaustive treatise on purchasing, the Purchasing Agent rates no further mention.

The line was evidently considered a good one, for only a few weeks later we ran across the same story, with slight variations in phraseology, in another marketing journal. This time it adduced even greater authenticity by inserting the word "True" and by appending a table of

supporting statistics (*q.v.*). It was noted also that the petroleum industry is unique in its purchasing practices, and the Purchasing Agent's title was capitalized, presumably promoting him to the equivalent of a Foreman's rank. For the sake of the record, the revised version is also quoted:

"Whether Drilling & Production, Pipe Line Transportation, Natural Gasoline Manufacture or Refining, it's the men who use . . . the Engineers, Superintendents, Foremen . . . who specify and buy.

"True, the responsibility for specifying equipment and materials used in construction, production, operation and maintenance varies according to specific needs in each division. But throughout it's the Engineers, Superintendents and Foremen . . . the men responsible for efficient operation and maintenance . . . who have the loudest voice in recommending and specifying machinery, equipment and supplies.

"In this respect, the Petroleum Industry is unique. Unlike many other fields, here real buying authority goes with responsibility for performance.

"In some small companies, Operating Officials also specify and buy. The Purchasing Agents are responsible for requisitioning engineer-approved materials and staple items such as bolts, nuts and nails.

Percentage of Equipment Bought by Each Group

(From a National Study of Oil Industry Buying Habits by T. Gaines Research, in cooperation with Hooper-Holmes)	
Superintendents and Foremen	51.13%
Engineers, all types	27.32%
Officials in charge of Operations	13.93%
Managers, all types	5.51%
Chemists, all types	.88%
Geologists and Geophysicists	.71%
Specialists	.52%

100.00%"²

The picture presented by these statistics and the "general truths" inferred from them are indeed alarming. It is a matter of common knowledge that there are Purchasing Agents in the petroleum industry, and some of them are reputed to hold rather responsible positions. The National Association of Purchasing Agents has drawn no less than three of its national presidents from this industry, and from three of its major geographical fields—Richardson of California, Bowman of the Mid-Continent, and Clark of the east. Year after year, there has scarcely been a national executive committee without a representative from this important industry. In the year just past, McClatchey of Tulsa was a valued member of the national council, and this year the highly industrialized District No. 6 is represented by a petroleum man—Forker of Oil City. In carrying on the war production effort, the government turned to petroleum industry Purchasing Agents for important service with WPB; to mention just a few of those who served, there were Clark of Gulf, James of Stanolind, and Weaver of Union Oil, past N.A.P.A. officers all. And when the "big inch" pipe line was built, the government borrowed another oil company purchasing man, another past vice president of N.A.P.A.—Lingle of the Humble organization—to handle the total procurement for that gigantic project, which required a lot of material other than bolts, nuts, and nails.

Yet according to the above statistics (defined by Webster as the "systematic compilation of instances for the inference of general truths") these purchasing officials, in the regular course of their work, buy nothing whatever—unless they are classed among the "specialists" who buy 0.52% of oil field equipment. And in the "general truths" inferred from the statistics, their authority is limited to "requisitioning" such staple items as the aforementioned bolts, nuts, and nails.

If this information even approaches the truth, it is evident that the purchasing contemporaries of these petroleum industry Purchasing Agents have been sadly hoodwinked and misled as to their status in the buying field. It is evident that the government has been appallingly remiss in placing any reliance whatsoever on such men, and a Senate

¹ *Industrial Marketing*, August, 1944, p. 60.

² *Printers' Ink*, September 22, 1944, p. 103.

investigation ought to be instituted forthwith. If this is a true picture, then the petroleum industry is indeed unique among all other industries in respect to its purchasing practices; and its management is more than a little bit wacky in maintaining the highly organized centralized purchasing departments that are known to exist.

But is it true?

To get the answer to those important "If's", we invited a number of petroleum industry Purchasing Agents to outline their actual responsibilities. Before undertaking any interpretation of the replies, or attempting to infer any general truths from them, let us follow the more scientific procedure of first presenting the evidence itself—the "compilation of instances" upon which any conclusion must be based. It can be done very briefly, with a half dozen exhibits from this correspondence, representing reputable petroleum companies from all the major geographical fields. Some of them are relatively small, some big enough so that, individually, they could alter the above-cited "statistics" into a totally new and unrecognizable tabulation. All of them are progressive and successful.

Exhibit I.

"Our company is small in size compared to the large major companies. However, it is well managed, substantial, and we believe well organized.

"Our Engineering, Production, and Purchasing Departments are closely related, and while it is true our Engineering Department does furnish specifications on requirements of major equipment, the Purchasing Department has absolute control of all purchases and makes the final decision as to where purchases will be made. About 20% of our purchases, which consist principally of minor items, are handled by our division offices. The Purchasing Department of our company also has full control of reclaiming, warehousing, and redistribution of material."

Exhibit II.

"Although I work very closely with the Engineering Department, nevertheless, if

I do not approve some of the items which they have requisitioned, I have every right to disagree, and if I am able to prove my point, my decision would stand over theirs.

"Our department is responsible for purchase of all items going into our Production, Refining and Marketing divisions. In addition to this, we are responsible for the purchase of advertising materials and records that are kept in connection with these items. We also control inventory on stock items for the refinery and marketing departments. It is our responsibility to place contracts with suppliers on such items that are used in large quantities."

Exhibit III.

"It of course is not true that the Purchasing Agents in the oil industry are limited to the purchase of bolts, nuts, and nails. They have, in very large part, the same function that Purchasing Agents have in other industries.

"Necessarily, the Engineers, Superintendents, and Foremen have a part in preparing specifications but so have the Purchasing Agents. As a matter of fact, it is the function of any Purchasing Agent to cooperate with the Engineers and the others in getting the best results for the company. It nevertheless is the true responsibility of the Purchasing Department in our company to procure materials, even those materials which go into construction programs which are, necessarily, to some considerable extent, the responsibility of the Engineers.

"It certainly is not true that Superintendents and Foremen are the fellows who decide who the sources of supply are to be. My judgment is that the best way to express it would be that the Purchasing Department works on the requisitions which originate with Superintendents and Foremen, and often pass through the Engineering Department for engineering data, and then become the sole responsibility of the Purchasing Agent as to price, performance, time of delivery, and all the other elements that enter into a successful purchase."

Exhibit IV.

"Whereas the head of our company's purchasing organization carries the rather hackneyed title of Purchasing Agent, at the same time he is an active member of its Board of Directors, takes part in all of its discussions of policy, and reports to its President. Furthermore, as such he not only is directly responsible for its own purchases, which range in value from approximately 50 million dollars in a subnormal year to about 100 million dollars in an abnormally large year, but coordinates the purchasing activities of affiliated

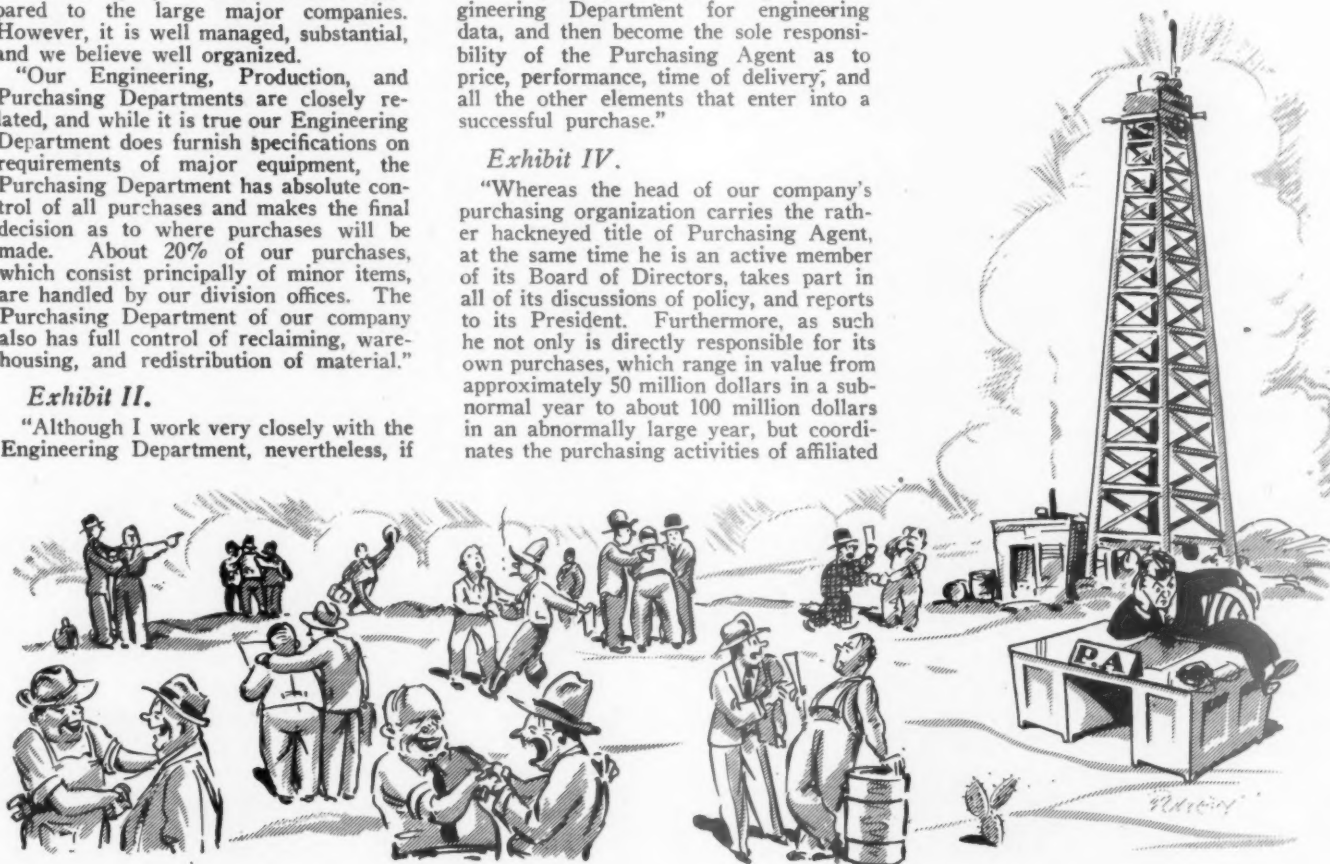
interests operating on a more or less world-wide scale; the total volume of which is approximately 200 million dollars annually.

"Through many years of mutually satisfactory relationship, most reliable firms with which we deal have gained an appreciation of the broad scope of our Purchasing Agent's authority and responsibility, and therefore know the Purchasing Department is the proper place to go in order to participate in supplying our material needs. To be sure, occasionally a high pressure salesman, perhaps disgruntled because of the fact that he has not been as successful in selling us as he believes he should be, will seek to obtain business through the back door. In a few exceptional cases this has resulted in attaining the immediate end desired, but the advantage gained in those instances was of only a temporary nature, and in the final analysis they soon learn to know the right man with whom to conduct negotiations on a permanent basis."

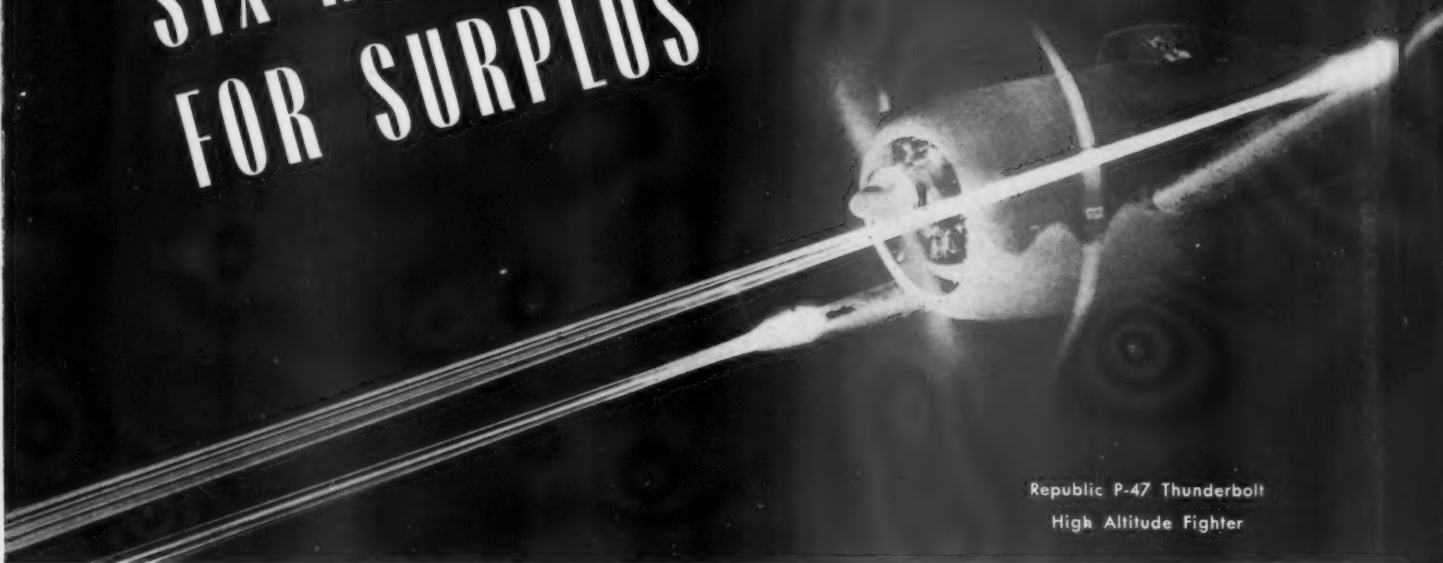
Exhibit V.

"There should be no difference between the operating and the purchasing departments. The former is responsible for using the materials acquired by the latter. The latter is responsible for acquiring materials which can be successfully and economically used by the former. If each group has an intimate knowledge of the work for which they are responsible, the cooperative arrangement is a splendid one and no difficulty is experienced in coordinating efforts or in separating the work to be performed by each group—the one in acquiring materials, the other in using materials. If one group has a more inti-

Continued on page 312



SIX REASONS FOR SURPLUS



Republic P-47 Thunderbolt
High Altitude Fighter

AMERICAN industry is properly concerned over the accumulation of surplus parts and materials, a by-product of the war production effort that embodies a serious threat to smooth reconversion and stable post-war markets. A large percentage of this is unavoidable—a part of the price that we must pay for war. But a considerable portion arises from causes within the industrial operation. Management in general, and the purchasing department in particular, has a responsibility to hold such avoidable surplus to the absolute minimum.

The aircraft industry is probably more seriously affected by obsolescence and surplus accumulations than most industries. This is largely due to the constant changes and improvements made in our planes to assure complete mastery of the skies. In fact, aeronautical engineering progress has been so rapid during this war period, that newly designed planes are literally obsoleted before they leave the drawing boards. These changes influence surplus accumulations, for it is often necessary to obsolete certain parts already purchased or manufactured in order to make the improvements. However, this policy is deemed well worth while, for it explains why American plane losses are consistently lower than those of our enemies.

Republic Aviation Corporation, producer of the P-47 Thunderbolt

By **JOHN P. MORAN**

Assistant to Procurement Director
Republic Aviation Corporation
Farmingdale, Long Island, New York

fighter plane, has faced this problem at first hand, for numerous changes and improvements have been made in this famous fighter since it first went into production in 1941, based on engineering progress and combat experience. Early in 1942 we found the surplus problem gradually creeping up on us, and we have taken it very seriously ever since.

One of the things we learned was that engineering changes were not the only cause of surplus accumulations, but that every single procurement function, if not properly handled, could be a creator of surplus to a greater or less degree. The accompanying table, based upon observation and experience, lists a

few of the principal factors that may contribute to unnecessary surplus accumulations. More important, however, is a review of the steps taken to meet these difficulties and overcome the conditions.

Material Control

At Republic Aviation Corporation, we suffered the same growing pains experienced by many other war plants in trying to establish the most efficient records to meet our rapidly increasing production and material demands. After many experiments, and after consuming our share of aspirin, we were convinced that the Procurement Department had to establish and operate a complete set of material control records, independent of any similar records in other departments.

In the beginning, to avoid duplication of records, we used the Accounting Department stock records as the basis for certain auxiliary records in the Material Control Division of Procurement. The Accounting Department was responsible for inventories, which they recorded in addition to receipts and disbursements. Material Control records chiefly reflected the status of purchase orders, i. e., quantities purchased, received, accepted, rejected, and unshipped balances; also quantities disbursed to stores, shipped to subcontractors, and returned to vendors.

However, the Accounting Depart-



IMPROVEMENTS BREED SURPLUS

Development of the clear-visibility bubble canopy, enabling the pilot to see "around the clock", was an improvement of tremendous value. But it involved complete redesign of the fuselage and literally hundreds of engineering changes affecting material needs.



R. H. McMANN
Procurement Control Manager
Republic Aviation Corp.

REPUBLIC TACKLES THE SURPLUS PROBLEM AT THE SOURCE

Left to right: L. J. Cunningham, Purchasing Agent; J. H. Moulton, Stores Manager; J. P. Moran, Assistant to Procurement Director; N. B. Amarr, Surplus and Scrap Sales; R. Vcelka, Material Control Manager; Walter Scrivens, Salvage Analysis Manager.

ment record was by its very nature a historical record. It dealt in money values, and the tempo in posting this record was necessarily slower than the split-second record required by Procurement. The latter department, dealing in quantities or units, required an instantaneous daily record of the thousands of items of production material under its control. You can't build planes with promises or material shortages. On the other hand, it's bad business to jam warehouses with surplus material, even if CMP restrictions did not exist.

The Material Control records now in use are simple and compact, on visible index cards, indexed by part number. Each card tells the complete story on the particular item covered, from the time the purchase request is issued until the part is completely consumed in production, or until the surplus or obsolete material, if any, is sold or scrapped.

There are four cards to each set, covering every part or type of material used in plane production:

1. *Product Schedule Follow-Up.* A complete record of every pur-

chase request and order issued for the item, from all vendors. Posting total receipts against total quantities ordered and scheduled monthly for delivery, enables Material Control to determine the delivery status of open orders. By means of a sliding signal, we know whether we have enough or insufficient material to meet our production schedules. If we have an excess quantity, purchasing is requested to retard deliveries; if we are behind schedule, purchasing is flashed accordingly.

2. *Record of Receipts.* The individual quantities received are listed for cumulative posting each month to the Product Schedule Follow-Up card.

3. *Record of Disbursements.* A record of disbursements to our production shops, subcontractors or others, showing balances available for production. If an engineering change makes the item obsolete, or if we have built up a surplus by using less per ship, the card is marked "inactive." Otherwise it is marked "active." Provision is made to record minima, and the date that surplus quantities are declared to our Surplus Sales Division. Inven-

tories are also recorded periodically on this card.

4. *Surplus Analysis and Disposal Record.* A detailed analysis of surplus and obsolete material, including usage. Knowing consumption, we can determine whether we have a surplus over CMP allowance or beyond our requirements to complete Army contracts; also whether we can spare any material to subcontractors or others in critical need of same. The record shows, separately, amounts of material owned by Republic and by the Army. This prevents confusion and unauthorized disposal of government-owned material, and is very convenient in the event of contract or project terminations.

This card also contains a compact record of surplus sales and balances available for future sales. It is the basis for catalogues of surplus material prepared for the Surplus Sales Division and Salvage Analysis Department. It is kept constantly up to date and is frequently checked for errors. A series of colored signals indicate the rapidity of surplus disposal and serve as a constant reminder of this condition.

	HOW SURPLUSES ARISE	HOW TO AVOID SURPLUS
1. Errors in drawings and engineering releases	<p>High pressure and long hours for engineers and draftsmen result in fatigue, haste, and consequently in errors.</p> <p>Mistakes in dimensions, specifications, etc., that are not detected before the part or material is delivered, result in surplus or scrap.</p>	<p>Check and double check.</p> <p>Engineers and draftsmen are generally accurate and conscientious, and they maintain a good record on this score.</p>
2. Indefinite or vague production schedules	<p>Eagerness to get started on a contract may lead to neglect of essential details such as a firm written contract, definite quantity and delivery schedule based on a predetermined production schedule.</p> <p>Goods ordered in excess of production capacity.</p> <p>Complete orders manufactured in advance of delivery schedule.</p>	<p>A carefully written contract for a definite quantity.</p> <p>An agreed contract delivery schedule.</p> <p>A carefully planned production schedule.</p> <p>A clear understanding by all concerned, of delivery requirements coordinated with the production schedule.</p>
3. Faulty bills of material	<p>Shortage of experienced or trained personnel with ability to interpret drawings properly and take off materials.</p> <p>Errors in dimensions, quality specifications, and acceptable alternates.</p> <p>Mathematical errors in calculating quantities required.</p> <p>Abnormal allowance for waste and spoilage (<i>perhaps the greatest single cause of surpluses</i>).</p> <p>Use of special dimensions and quality specifications.</p> <p>Lack of coordination of functions and facilities of engineering, bill of materials preparation, production control, manufacturing, material control, purchasing, inspection, testing, salvage, and surplus sales.</p>	<p>Good supervision and a well organized training program.</p> <p>Better description of materials.</p> <p>Plenty of good calculating machines, capable operators and checkers.</p> <p>Reliable stock and consumption records; constant review of actual performance.</p> <p>Standardization, so far as possible conforming to commercial standards—a great help in surplus disposal.</p> <p>Periodic conferences: complete, intelligent, and friendly cooperation.</p>
4. Errors in purchase requests, purchase orders and change orders	<p>Abnormal amount of paper work incident to engineering changes, revision of production schedules, cancellations and reinstatements, leading to possible confusion, duplication, and errors in transcription.</p>	<p>Accurate record system to control quantities.</p> <p>Careful check of bill of materials vs. engineering specifications, purchase requests vs. bill of materials, purchase and change orders vs. purchase requests.</p>
5. Engineering changes	<p>Vendor may continue to produce unwanted parts.</p> <p>Change may affect other components or assemblies, produced in the plant or by subcontractors.</p> <p>Unavoidable delays in procuring new special items may require the continued use of obsoleted part until replacement arrives, or even reorder of obsoleted item, to avoid stopping the production line, so that two different items are temporarily in current use for the same purpose.</p>	<p>Immediate notification of all parties concerned—vendors and subcontractors; purchasing, receiving, stores, manufacturing and accounting departments.</p> <p>Indicate clearly at what point engineering changes become effective, i.e., whether they affect completed planes, ready for delivery, partially completed planes or assemblies, or those going into production.</p> <p>Thorough analysis of the effects of the change, so that parts definitely obsoleted can be removed from active stores and production departments, and for possible reactivation or parts or material previously obsoleted.</p> <p>Cooperation with engineering department for possible modification of specifications to permit reuse of obsoleted items.</p> <p>Reworking of obsoleted material on hand, insofar as practicable, to meet engineering requirements.</p>
6. Inadequate control records	<p>Incomplete knowledge of stock on hand, inaccurate estimates of requirements, rush orders, and duplicate orders.</p>	<p>Efficient material control records (see text).</p> <p>Control of overshipments and premature shipments.</p> <p>Strict inventory control.</p> <p>Salvage and reclamation system.</p>

We have established a strict policy on both overshipments and premature shipments, both of which are creators of surplus. We allow a 5% quantity overshipment, or \$25 in value, as compliance with our order. But our purchase orders clearly state that overshipment must be justified "when caused by conditions of loading, shipping, packing, or allowance in manufacturing processes." Such overshipments do not require issuance of change orders.

If the overshipment is justifiable, we accept it and our receiving report shows the total quantity of material received. But if the overshipment exceeds the percentage allowed, the Receiving Department prepares an "Overshipment Report" notifying Material Control and Purchasing. If Material Control accepts the overshipment, a change order is sent to the vendor and Receiving Department authorizing acceptance. Otherwise, Material Control instructs Receiving to return shipment to vendor with a letter explaining our policy.

Prior to tightening up our overshipment policy, we noticed that some vendors were chronic overshippers, even when material was scarcer than at present. We felt that as long as the carefully calculated delivery schedules on our orders were met, we had no right to deprive other war plants of the use of critical material we did not immediately require. Further, we wished to avoid violation of CMP regulations.

The cousin to overshipments is advance or premature shipments. At one time these were the "expeditor's delight", but nowadays they are a potent contributor to unnecessary surplus, unless strictly controlled. We refuse to accept any shipment that arrives more than 30 days ahead of delivery schedule as indicated on the purchase order. In handling advance shipments, we use the same procedure governing overshipments.

As a result of these policies, we return to vendors several thousand dollars' worth of material monthly, keeping it out of our surplus account.

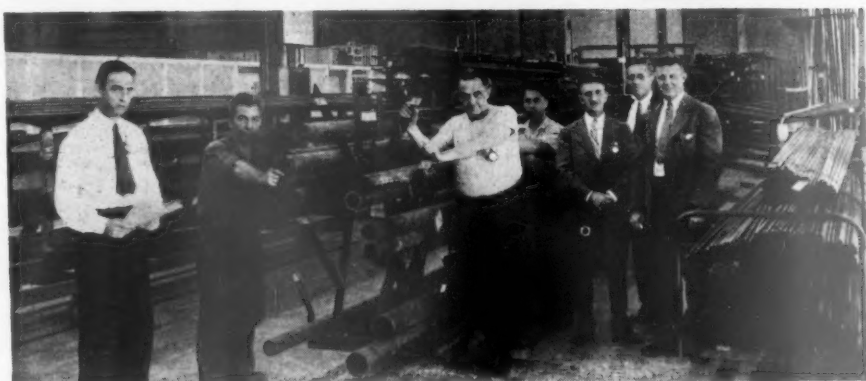
Control of Physical Inventories

While stock control records are, in effect, perpetual inventories, they must be substantiated by periodical physical inventories, promptly posted to stock records and discrepancies reconciled. Even the finest record system is subject to human errors, especially under wartime pressure.

GOOD STOREKEEPING AND ACCURATE RECORDS ARE ESSENTIAL TO MATERIAL AND SURPLUS CONTROL



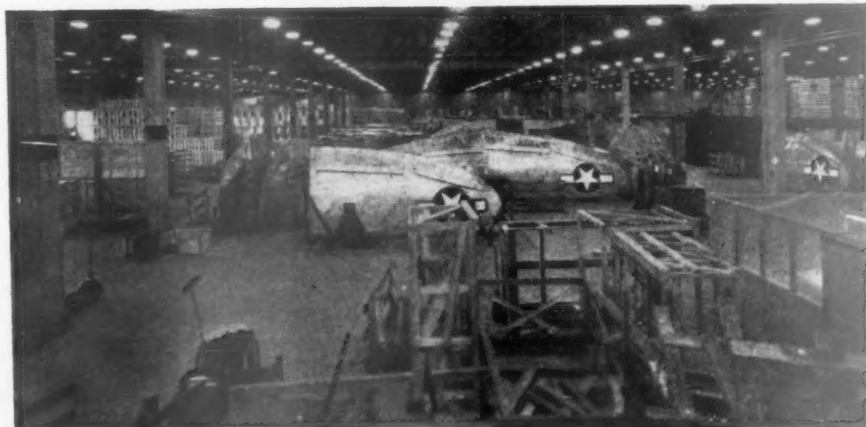
Receiving, inspection and stores are organized on a straight-line basis.



Government-owned surplus is carefully segregated and tagged to avoid confusion in accountability.



Company-owned surplus stores are kept in orderly fashion for possible reactivation or prompt disposal.



Special stores section for subcontractors' materials.

In Material Control at Republic, we frequently handle more than 15,000 transactions weekly, which indicates the possibilities of error, regardless of vigilant care exercised. We therefore make a complete and continuous count of all production raw material, parts, equipment and tools on a 90-day cycle basis.

Yes, we do find some errors in our stock record cards, and some errors in the physical count itself. In fact, we expect to find a reasonable amount of errors—erroneous quantities may be posted, or maybe to the wrong stock card; an incorrect count may have been inserted on the original receiving report; or Stores may have disbursed a different quantity or type of material than indicated on the stores requisition. The periodic check-up enables us to discover these errors before it is too late, and helps us to avoid increasing the surplus pile.

Inventory counting is under the supervision of the Stores Manager, who maintains a specially trained crew, thoroughly familiar with the material which they are assigned to count daily, and with its location. Locations of all stores items are listed prior to the count, and an absolute shut-off point is established to insure a perfect count.

Material Control prepares a count sheet for Stores, covering each item in the stock records, but without showing quantities. Stores inserts the inventory count and forwards the sheets daily to Material Control and Accounting, where they are immediately posted to the records. Overages and shortages are reconciled with adjustment requisitions. Recounts are demanded whenever the count sheets show an excessive overage or shortage, compared with stock records. Obviously an incorrect count, undetected, can cause a surplus or shortage.

This inventory shows us our actual stock on hand, so that we may act immediately to dispose of surpluses or replenish shortages.

Stores Control

The fundamental responsibility of the Stores Division is to account and care for every item from the time of receipt until disbursed on

Continued on page 342

FOUR SIMPLE FORMS ARE THE KEY TO SURPLUS CONTROL

1. Product Schedule Follow-Up.
2. Record of Receipts.
3. Record of Disbursements.
4. Surplus Analysis and Disposal Record.

High prices are not the measure of prosperity, but lower costs, more consumers, and a reasonable profit all around is a pretty good formula

By CHARLES FORD



STICK 'EM UP!

WE'VE done a lot of good things in this country. We're going to do a lot more. But sober reflection doesn't convince me that we are half as damned smart as we think we are.

We seem to have, firmly imbedded in that convoluted mass of gray gurry we call brains, the idea that the way to make money and get ahead is to push prices up. If supply and demand don't push 'em up, get the jack under them. If some ignorant foreigner sells us a little stuff that somebody in this country might have made, slap the tariff on him and keep him and his pauper labor to hell out of here. If our cotton raisers don't show enough gimp to get their costs down so they can sell at a profit, why waste time teaching them better? Every one of 'em has a vote, so let the government fix an artificial price so they can get by; Uncle Sam's hock-shop is still on the job.

When a wheat crop upsets supply and demand, why worry about turning it into folding money for beans and sowbelly and a little terbacker? Why do a lot of figuring to see what it costs us and how we can get a profit out of it? We have Congressmen to take care of those matters, and if they don't work overtime at the job we'll get Congressmen who will. Hooray for the great national three-ball emporium!

The labor union megaphones add to the chorus ever-louder cries for higher wages. Nothing offered in exchange—just more money. If they want to indulge in a strike now and again, they want to be sure there's enough change in the sock so the old woman won't have to take in washing for a fortnight or so. What if the strike is unreasonable or treasonable? The union bosses just say, like the Japs: "So sorry." And there it is.

Success Stories

If you heed the history of industrial development you will find that, at the back of every big success, some smart guy has figured out a way to make something so good and cheap we just have to buy it.

Cellophane, before we got used to tangling our feet in the scrap, started out at about \$2.50 a pound; not many cigarettes and hard-boiled shirts came wrapped in cellophane those days. But the smart ginks that made it figured right: make it cheaper and cheaper and pass along reductions fast enough to keep the pikers out. Meanwhile show people how to use it.

When Uncle Henry Ford decided that cheap, fast, individual transportation was a sound idea, did he keep the price up? Not by one damned sight. He announced to a cock-eyed gathering of newly

hatched motor fans, sitting complacently in their new cars at four to ten thousand pesos per copy, that the following year he planned to make one thousand cars and sell them at five hundred smackers per each. And went ahead and made good, thereby proving that he was crazy—like a fox. Prices down and wages up, that was genius. Some guy, Uncle Henry.

Bigger and Better

The Army and Navy are said to have a lot of land that must go on the market; but there's a howl in Congress about letting anyone have more than enough for a small farm. For Pete's sake, can't we learn anything from experience of raising a big important crop with a lot of share-croppers, tenant farmers, hillbillies and other unfortunates? Wouldn't it make better sense to bunch a lot of this land in a corporation where each one turned in his land and equipment for shares, and got busy working for the corporation under intelligent direction for decent wages, with the chance of a dividend being kicked in occasionally?

Seems as though.

If we manufactured crops instead of soil-scratching them, maybe Uncle Sam could liquidate the rock-shop. Too bad for the politicians, but then—

Is there any earthly reason why farming can't be run as a business with the same intelligence and enterprise that go to making radios and tooth paste and motor cars? Would we then need to worry about Brazil's cost of raising cotton or Argentina's cost of raising beef and wheat?

Maybe I'm screwy, but I don't think so. If corporate organization and operation are a good thing in business, why not take a little time out and consider farming as a business? Jefferson had a vision of this country as a great area of small farms; but his vision didn't take in the possibility of railroads and radio and all the other gadgets that make distance less than a state of mind. And I think he would have been much concerned at the idea of making one big farm out of fifty little ones and running the big one to make some money.

Costs and Consumers

I suppose, as evidence of good faith, a big farming corporation would need a Purchasing Agent. There is no less merit in buying fertilizer, smell and all, and tractors and seed and stuff, than in buying steel and paper and milling machines. A Purchasing Agent some-

times does operate usefully in keeping costs down.

And what I'm trying to get at, mainly, is the fact that the way to get business is to keep costs down, put down the selling prices and move the stuff. *Move* the stuff; don't hock it. High prices don't necessarily make for prosperity, and low prices don't necessarily mean low wages. It's finding ways to make every move count, getting out the most product per man employed; then do some ground and lofty hustling to sell it.

The Purchasing Agent's contribution to this wide-open field is, not to buy for the sake of buying cheap, but to make each purchase constructive, part of a plan to assemble the final product, be it locomotives or lollipops, so it can be sold to the widest range of consumers. If the Purchasing Agent is on to his job, he will be damned sure that his supplier can sell at the necessary rock-bottom prices and still make some money.

Jim Mallory belonged to the hoss-tradin' school of Purchasing Agents. In the days when he flourished as buyer for a big western house, about once a year domestic extravagance ran to a fruit cake or plum pudding studded with hunks of delectable, if

indigestible, stuff called citron. Citron grows in Mediterranean countries, looks something like a melon, but is related to the orange-lemon-grapefruit group. The wily Wops used to rip the guts out of a citron, boil the rind full of sugar, pack it in veneer drums of about 25 pounds, and ship it over here for the Christmas grub-fest. Not much sold at a time, but plenty in the aggregate. Jim's boss decided to fool the Fascists, import the citron halves in casks and sugar his own. He put the price way down, got the jump on the importers. People invented new ways to get dyspepsia via the citron route and Mallory's boss went to town.

Then a couple of competitors decided they would horn in on the good thing. Eventually they cut liver and lights out of the price and the whole business expired from lack of nutriment. But for a while it sailed high, wide and handsome.

During the flush period, Jim had a call from a Yankee veneer man, who wanted to sell him the half-million or so veneer drums he needed for next year's pack. Jim turned the heat on him and closed a contract at what looked like a preposterous price, maybe nine cents a throw. Then the Yankee wanted some information about where he could sell some more.

Jim remarked: "Well, Mr. Crawford, you've done me a good turn; now I'll do one for you. You're a damn' fool. I'd have paid you twelve cents for those drums. Now, you get over to these other fellows and stick 'em up for about thirteen cents or two for a quarter; you might as well get expenses out of your trip."

Which the Yank proceeded to do. A nod is often as good as a wink to a blind horse.

Live and Let Live

Under the same conditions, you and I might have done the same as Mallory. But, when we are buying for an assembled product where parts run into millions, if we are smart, we'll go a little farther. We will make it our business to know something about our supplier's facilities and costs. If they are not right, we ought to contribute some knowledge and experience to make them right, and see that he can meet our price necessities and still have a little money left for a set of new tires. We must not only let the other fellow make a profit, but we must see that he can make it.

Continued on page 346

P.A.'s POST WAR PLANS DREAMS

by H. Grider



"Deliver it tomorrow morning or else!"

8 LESSONS we have learned from Wartime Purchasing

By STUART F. HEINRITZ

FOR the past five years, industrial purchasing has been done under very abnormal conditions. The problems of securing a steady flow of materials from limited sources available, to support greatly expanded manufacturing programs; of finding suitable substitutes and alternatives in cases of emergency; of developing subcontractor facilities; of scheduling, and expediting to meet schedules; and of conformance with the intricate and constantly changing system of government controls—all these have challenged the resourcefulness and skill of the purchasing man.

The record of purchasing accomplishment under these extraordinary difficulties has been a remarkable one, and a source of well justified pride. As quota after quota of the war production program has been reached and exceeded, it becomes increasingly evident that procurement—the first step in production—has been consummately handled.

At the same time it must be recognized that under the stress of wartime urgency, with its necessity for expedients and compromise, purchasing has fallen into some bad habits which must be corrected as a part of the transition from a wartime economy back to the exacting competitive economy of peace-time production for the civilian market.

Because availability of materials has been the paramount consideration, transcending every other factor; because of the casual philosophy that, in the long run, the government would foot the bill, either as customer or through tax deductions; and because marginal, high-cost plants, called into production because of the desperate need for total capacity, have set artificial and uneconomic cost standards — wartime purchasing has been careless of cost.

Because of the frequent need for substitution, and

the freedom allowed to purchasing men in this respect so long as end-use might be served—wartime purchasing has been careless of strict quality standards.

Because materials distribution has been channeled through priorities and allocations, reinforced by mandatory acceptance of orders and fixed preferential sequence of delivery—wartime purchasing has been careless of supplier relationships.

Under these circumstances, the admonition, "Get back to fundamental principles in purchasing", is excellent advice. But it is not a complete prescription. Wartime purchasing has also a contribution to make to purchasing knowledge and technique—new angles of approach, new methods, and new philosophies developed to meet unusually difficult situations, but equally adapted to effective use under more normal conditions. It would be one of the major tragedies of war if industry, and purchasing, failed to salvage wartime experience, out of the welter of waste and destruction, and put this much at least to work in the constructive activities of post-war operation.

To seek out what is new in the field of purchasing, we must examine the job itself, the materials with which it deals, and the economic conditions under which the job is to be done. In every one of these phases we find changes at hand or impending, incident to the period of reconversion and post-war production, presenting a new set of problems for the purchasing man. And in every phase there are lessons to be learned from our wartime experience and applied to the problems ahead.

Here are eight of these new concepts—the most significant in their potential effects upon purchasing practice, upon the service that purchasing can render, and upon the position of the purchasing executive.

- 1. Keep Materials Moving**
- 2. The Time to avoid trouble is before it starts**
- 3. The Bill of Materials is the Basic Requisition**
- 4. The supplier's problem is the buyer's problem**
- 5. There's Know-How in Purchasing, too**
- 6. Materials are purchased to accomplish a purpose**
- 7. All purchase economies do not show on the invoice**
- 8. Initiative is on the side of the Purchasing Agent**

1

Keep Materials Moving

THE success of the war production program, calling for greater volume of production from critically limited stocks of materials, has been possible only by channeling the course of those limited supplies and seeing to it that they moved steadily toward the desired product objective. It has been a gigantic job of scheduling, from the original producer of the raw material to the end-product quota—starting on an international scale with the Joint Requirements Board and carrying through to the simplest item of maintenance in the smallest plant. No stockpile accumulations, no comfortable reserve, anywhere along the line. Every ton, every carload, every production lot had its destination, and moved toward that destination with singleness of purpose.

Under these conditions, the act of purchase and sale has taken on a deeper significance than merely the transfer of ownership or title. It is the means of implementing the flow of materials from one stage to the next in the production process.

And another concept we have developed from this experience is that of "lowest practicable working inventory"—which was variously set at 30 days supply, 40% of quarterly requirements (about 5 weeks), and rarely at more than 60 days. We found out that it worked—sometimes at the sacrifice of economical purchase quantities, and too frequently at the expense of the Purchasing Agent's health and peace of mind, but it did work.

Let's see what this can mean in terms of peace-time application. The company that aims at an inventory turnover of four times per year is setting a reasonably high standard of performance. Six times

a year is exceptional. Twelve times a year would be regarded as phenomenal or even fantastic. But here is a program predicated on turnover of six to twelve times per year as a practicable standard under conditions of extraordinary difficulty.

In peace-time operations, with supplies easier and transportation facilities less jammed, with less likelihood of deliveries being diverted or delayed to make way for some other customer's higher priority, and consequently less need for "insurance" stocks, there is every reason to believe that such standards of inventory and turnover are even more practicable than in wartime. If industry could achieve a turnover of six or more times per year on its major production materials, to say nothing of total inventory, a notable economy would be earned in the materials—i.e., purchasing—account.

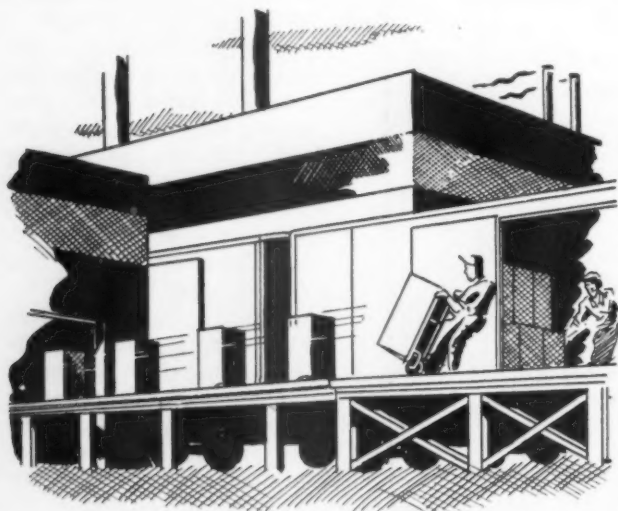
This is not to say that turnover is the sole or even the dominating measure of purchasing efficiency, when wartime urgency ceases to be the primary motive of our whole industrial economy. There will be many cases when the advantages of quantity purchasing, the advisability of maintaining prudent stand-by stocks, the desirability of advance coverage on rising markets, the economies of carload transportation, the elimination of frequent repetitive ordering, will outweigh the consideration of hair-line inventory control. The physical and nervous welfare of the Purchasing Agent is also a practical factor. We can endure, and even get a thrill out of seeing a shipment arrive in just the nick of time, as a patriotic measure, but that sort of tension is not practicable, nor worthwhile, nor even economical, as a steady practice for the sake of the profit system.

What this experience does teach us is that inventory investment and turnover has not always been given its full weight as a factor in purchasing policies and decisions; that we have fallen far short of realizing the potential economies from this source; and that we ought to raise our sights and raise our standards in this respect. We have had a striking demonstration of the fact that it can be done.

The mechanics of such operation are bound up in the science of scheduling. The scheduling of orders and commitments is a basic responsibility of the purchasing executive, and is no less so when it is dignified by the term "materials control". Purchasing in the broad sense is materials control. To divorce the two is to fail in one of the fundamental responsibilities of the purchasing function and to surrender one of its most important prerogatives.

Scheduling of purchases presupposes a familiarity with production plans and requirements. The compilation and verification of quarterly requirements lists to comply with governmental controls as a necessary advance step in procurement, has shown that this, too, is entirely practicable and very advantageous.

To achieve a comparable efficiency in peace-time purchasing, the same advance information must be available to the Purchasing Agent. If and when government controls are removed, the common-sense mechanics of planning and scheduling should not be abandoned. Production starts with purchasing, and purchasing should start with the original production program, rather than waiting for a belated requisition that shows only one detail of the larger plan. Materials can be purchased and scheduled intelligently and effectively only when the Purchasing Agent is intimately and actively a member of the management councils where production plans are made.



2 The Time To Avoid Trouble Is Before It Starts

MORE and more, we have learned in wartime that purchasing is a science of scheduling, and that scheduling means more than noting a "date wanted" on the purchase order. Many purchasing departments have done that as normal routine procedure on every order ever issued, but have been lax even about securing an acknowledgement and promise from the vendor. It is a completely futile gesture if the buyer learns that delivery schedules will not be met only after it is too late to do anything about it. The time to avoid trouble is before it starts.

Scheduling begins, of course, by coordinating purchase orders and desired delivery dates with the production program. But scheduling becomes effective only when the Purchasing Agent assures himself that the deliveries can and will be made as planned. No successful purchasing program can be founded on the expectation that the goods will be available on the supplier's shelves at the time and in the quantity that he may desire.

One preliminary to effective scheduling is to establish for each major item a realistic "procurement cycle"—the necessary time interval between the issuing of a purchase order and the delivery of the merchandise to his own plant, ready for use. This may start way back with the supplier's own procurement of raw materials and the preliminary processing operations. It will certainly include the period required for direct fabrication. This presupposes a knowledge of manufacturing processes and of economical manufacturing quantities, and a reasonable allowance for fitting the order into the supplier's production schedule. It will include the time required for transportation and delivery making use of the most economical facilities. It will include the time required for receiving and inspection at his own plant, and it will take into consideration the possibility of rejection. The procurement cycle for shelf goods bought from a local supplier may be a matter of hours; for an intricate special forging, and under exacting market conditions, it may be a matter of months.

Effective scheduling requires a knowledge of the individual supplier's facilities and capacity, and a reasonable measure of his reliability, in order that the proposed schedule may be realistic and fair. It requires the acquiescence and promise of the supplier, without which there is no agreement and no basis for enforcement.

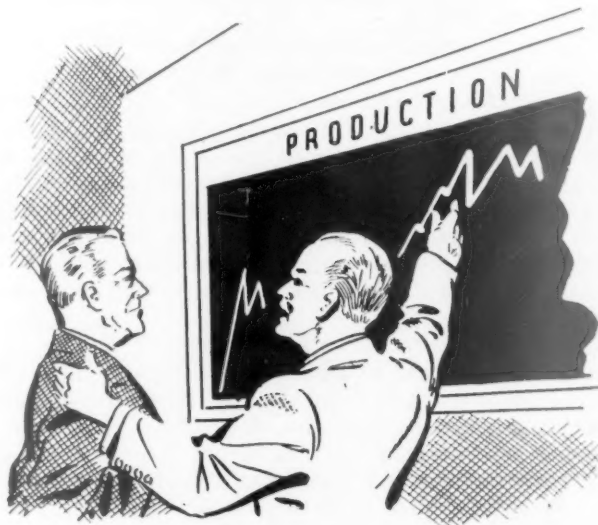
Once the order has been placed and accepted, on such a basis, it requires systematic follow-up to insure that performance will be according to plan.

The traditional conception of follow-up, or expediting, was to set up a tickler file on important orders,

calling the buyer's attention to delinquent deliveries a few days before they were expected to arrive, and then to institute whatever measures of reminder, pressure, cajolery, or influence that the situation warranted and that the resourcefulness of the Purchasing Agent could devise. Too often it developed that such action came too late to be of practical avail, and that such measures were inadequate to secure deliveries as needed.

The modern conception of expediting is scheduling that starts with the placing of the order and follows through with periodic progress reports during the life of the order, indicating its status in relation to the schedule and the probability of meeting scheduled dates. Under such a system, if unavoidable delays are encountered, they become known to the buyer as they occur, usually in time to do something about it. There is a possibility that the buyer may be able to help with materials or to authorize minor changes in the specification. Or he may be able to arrange for alternative materials or sources, still maintaining the schedule. At worst, his own plant's schedule can be adjusted, avoiding wasteful waiting time for this particular item. In any event, he knows—in advance—exactly what may be expected.

It is no idle coincidence that in wartime purchasing the expediting staff, at the purchasing office and in the field, has frequently outnumbered the buying staff. Under the more normal conditions of peace-time operations, such a situation should not be necessary, but it is a significant indicator of the importance of this



phase of procurement scheduling.

Annals of World War I are full of intriguing instances where the Purchasing Agent posted himself at the end of a supplier's assembly line to grab off the product, or rode the caboose of a fast freight to insure delivery of an urgently needed carload at his plant, or haunted the freight yards to locate a tank car that had gone astray. These were cited as examples of the "romance of purchasing".

Scheduling is scientific rather than romantic. But it gets better results, and it obviates the necessity of such romantic expedients by avoiding trouble at the very source, before it becomes real trouble. In an era of scientific industrial management, purchasing must be scientific too. Scheduling is the foundation of an effective purchasing program.

3

The Bill Of Materials Is The Basic Requisition

TRADITIONALLY, standard purchasing procedure starts with the requisition. According to the textbooks, the requisition—whether issued by production, planning, stores, department heads, or even by the purchasing department itself—is basic. It serves a dual purpose: it expresses the need for certain material, and it provides the authorization for the purchase. A few large-scale industries, manufacturing standard models in predetermined quantities, found a way to eliminate this step by using the bill of materials for the factory order as the authorized basis of the purchase program, but these were regarded as exceptions to the rule. Frequently, even under conditions which made such a procedure possible, the bill of materials was still translated into requisition form as an intermediate step, to conform with a purchasing system, and for the record.

War contracts generally approximated this situation of standard models and shop order quantities, in plants where this had not previously prevailed. An increasing number of Purchasing Agents recognized that the requisition, instead of being essential to their operation, might indeed be a needless formality. The bill of materials in itself expresses a definite and detailed need, and as the basis for an authorized manufacturing program it was actually the authorization to implement that program with the necessary purchases.

If requisition procedure consists merely in copying data from one form to another, and passing the new form from the right hand to the left hand before proceeding with the purchase, it is obviously a cumbersome and wasteful way of doing business. In a surprising number and variety of operations, this has been found to be the case.

Purchasing directly from the bill of materials does not preclude any of the customary sound principles of procurement, such as anticipation of requirements, contracting for estimated annual quantities, combining the requirements of like materials into economical ordering quantities, or maintaining prudent stocks of standard production items. The bill of materials is routed first through the stock record division, and items on hand are allocated to the order in the required quantity and deducted from the book balance. Items not on hand are marked as "short", thus calling for a purchase to be made, and the complete list is passed along to the buyer for action.

Handling the matter in this way has two distinct advantages beyond the elimination of paper work and the avoidance of possible clerical errors in copying. (1) It covers the whole range of miscellaneous staple items such as bolts and nuts, which would ordinarily

be requisitioned from or by stores rather than by the production department itself. (2) It provides a direct check on the complete availability of all items needed for the project, in the purchasing department—information which would not be given by individual purchase requisitions calling for specific parts. Both of these considerations make for smooth and uninterrupted operation once the project has gone into production.

This procedure is adapted to production items primarily. Maintenance items, supplies, fuel, etc., may still be requisitioned in the usual course, but on such purchases there is no comparable problem of obsolescence or of balanced quantities. Standard materials and contract items may still be purchased on a maximum/minimum stock basis or on annual estimates. But for the thousand and one production items for which a specific need arises, the bill of materials technique promises a substantial saving of work and a corresponding increase in efficiency. Standard purchase systems are now being devised in which the requisition plays a very minor role.

One special adaptation of this plan is known as "pilot purchasing", being derived from the familiar production principle of the pilot lot or pilot plant operation that precedes full-scale production. In such a procedure a "unit purchasing schedule" is set up, based on the bill of materials and worked out in complete detail as to specification, quantity, standard cost, and even the sources of supply. When a manufacturing run is planned, the unit schedule is turned over to the buyer with instructions to multiply by a hundred, or a thousand, or ten thousand as the case may be, and procurement becomes a matter of simple clerical routine.



Pilot purchasing has its advantages when such schedules are worked out in the purchasing department and are used as a guide rather than as an arbitrary instruction. However, when unit schedules are considered a function and responsibility of design, engineering, or planning departments, there is a very real danger that they may be the very negation of effective purchasing practice unless wide latitude is allowed for review and the exercise of purchasing judgment—and this, in turn, is a negation of the unit principle.

It should be borne in mind that the statement of need and the procurement of materials are two distinct functions, and the latter belongs wholly in the purchasing department. When the bill of materials is used as a requisition, it becomes to that extent a purchasing document and passes outside the jurisdiction of production and planning so far as procurement is concerned.

4

The Supplier's Problem Is The Buyer's Problem

It is axiomatic in purchasing that any procurement program is just as strong—or as weak—as its suppliers. With this in mind, a great deal of attention has been given to the selection of sources of supply and to the cultivation of satisfactory buyer/seller relationships. By and large, however, it simmered down to the fact that a supplier was either satisfactory or unsatisfactory; he could deliver the goods or he couldn't. How he did it was his own problem and his own affair. If he couldn't deliver, he was dropped and another source was sought.

Wartime introduced to industrial purchasing the figure of the subcontractor, a term heretofore used chiefly in the construction trades. In a sense, the subcontractor is nothing more nor less than a supplier; some of the interpretations of governmental regulations affecting purchasing made a distinction between the two based entirely on the amount of his order.

But as a practical matter, the subcontractor is more than just another supplier. Certain regulations, contract terms, privileges and responsibilities are passed along to him by virtue of the prime contractor's agreement. He shares the prime contractor's priority rating; his product is subject to inspection and his costs are subject to audit by government officers although he holds no direct contract with the government. He is eligible for financial aid from government in respect to facilities, equipment and operating funds. In many cases he does not hold title to the material on which he is working, and sometimes the contract calls only for machine time or capacity to be used at the discretion and under the direction of the prime contractor's organization.

Many subcontractors active in war production have needed a great deal of help—help in securing materials, in engineering service, in cost calculation and cost reduction, in record keeping, in fitting their operations to the standards and flow of the general program. Purchasing Agents responsible for subcontracting have accepted it as a part of their job to see that this help is forthcoming, and to make sure that the subcontractor is a satisfactory source of supply.

This is a far cry from the philosophy that a supplier's problems are exclusively his own affair. More and more, purchasing men have come around to the concept that the subcontractor (i.e., supplier) is essentially a part of the buyer's own organization, which happens to be operating under another roof and under another management, but which has a common interest in efficient production and contract performance. In consequence there has been a notable advance in cooperation, in the development and improvement of supply sources that have appropriate facilities and the potentialities of satisfactory

service, rather than a strict evaluation of performance and the constant search for new and alternative sources.

There can be little doubt that this approach to procurement holds the promise of increasingly satisfactory supply and of better relationships between buyer and seller. The extent to which it will prevail in more competitive post-war markets is of course problematical, but the wartime experience is bound to have a lasting effect not only upon individual company relationships developed during this period, but upon general purchasing policies as well.

Patronage must be earned by satisfactory performance at a fair price. Loyalty to a supplier—and conversely, loyalty to a customer—goes deeper in that it implies an attitude and a policy, in addition to the act of patronage, and this must be earned by cooperation and a regard for mutual welfare in the continuing series of transactions. Thus the psychological advantage is reflected and expressed in tangible advantage, justifying the policy.

There is every reason why the buyer, in a highly competitive period, should make a special effort to develop sources of supply that are loyal, and that are practically adapted to his special need, embodying such advantages as geographical location which would reduce transportation costs and make for better service, and technical resources which assure him of the most advanced quality and production methods. And there is every reason why he should work closely with them, making their problems his own, toward a more satisfactory and profitable relationship on both sides. He is likely to find them more responsive to such an approach under competitive conditions. The necessity of wartime becomes a virtue and opportunity in the competitive economy.

Buyers will look for much assistance, too, from their suppliers, to safeguard and improve their own competitive position. This assistance will be more effectively encouraged and more intelligently offered if the feeling can be established that both are working together toward a common objective and with a common interest. This is the essence of the subcontract idea, tied in with the end-product rather than considering the purchase itself as the beginning and end of the transaction.

In five years of war procurement we have learned that it is better to regard all suppliers as subcontractors than to think of subcontractors merely as suppliers.



5

There's "Know-How" In Purchasing, Too

If there is one thing which has been demonstrated above all others in the experience of governmental procurement for the war effort, and by procurement for the scores of new war production facilities, it is the desirability of getting a purchasing man to do a purchasing job. The contributions of skill and service made by Purchasing Agents in this great undertaking will be a permanent source of pride to all buyers, and deservedly so. The results—in speed, efficiency, and keeping down the cost of the war—can never be adequately measured, but it is universally conceded that this is one of the brightest chapters in the story of war production.

It was logical and proper that production experts, commodity experts, experts in economics, statistics, accounting, administration, transportation, etc., should be recruited to aid in the manifold phases of a program that, from relatively small beginnings, quickly came to embrace the greater part of our national industrial structure and added a substantial volume of new facilities to swell the total. It is greatly to the credit of those in charge of the governmental organization that they early recognized one basic difference between this project and the typical industrial operation—that whereas in industry, procurement exists for the purpose of implementing production, here production exists for the purpose of implementing the tremendous procurement problem of a nation at war. So experts in purchasing were called upon to take over the purchasing phase.

The same policy prevailed all along the line. When the British Purchasing Commission opened its offices in New York City, they were staffed with seasoned American Purchasing Agents in the key positions, some of them called back out of retirement to meet the need. The armed services, organized with procurement divisions of their own, brought in industrial Purchasing Agents to

assist in determining policies and administering the program. In the dozens of new ordnance and ammunition plants that sprang up all over the country, experienced purchasing men drawn from a source of diverse industrial fields were placed in the all-important purchasing offices.

For the most part, these men were called upon to deal with materials and products and markets totally foreign to their industrial experience; their one qualification was that they knew how to go about procurement. Thus the Air Force purchasing organization was set up by men whose buying experience had been in mechanical refrigeration; Ordnance called upon a purchasing executive from the public utility industry; in the Navy Department we find men from such diverse backgrounds as paper manufacturing, sugar refining, and metal fabricating. A buyer from the chemical industry does an outstanding job in the purchase of fire protection equipment. In the DPC plants, purchasing for the manufacture of shells and guns and tanks, are men who learned their buying in rubber footwear, metal novelties, mechanical pencils, plastics, food processing, soap, and a score of other unrelated fields.

A comparable trend appears in private industry. Companies that have heretofore held that familiarity with the company's own operation is the first requisite of a buyer, and that have adhered strictly to the policy of finding their Purchasing Agents within their own ranks and letting them acquire experience on the job, now seek competent purchasing men for the purchasing assignment. Typical important purchasing appointments of recent months show men moving from rubber to shipbuilding, from cosmetics to food, from upholstery fabrics to electrical appliances, but in each case from purchasing to bigger purchasing.

The significance of this lies in the growing recognition that there is a "know-how" in purchasing as well as in production or any other phase of industrial endeavor. However much management may give lip service to the trite disparagement that "Anybody can buy," its actions proclaim emphatically that when there's a big purchasing responsibility to be met, management today seeks a man who knows how to purchase, and leaves the detailed familiarity with materials and their application to be acquired on the job.

More than any argument which has heretofore been adduced, this puts the professional stamp on the purchasing function and its practitioners. By strict definition of the professional man, with prerequisites of specified academic training and degrees, public examination and licenses to practice, purchasing has been technically barred from the select circle of professional engineers, doctors, lawyers, clergymen, architects, *et al.* But now, by the practical test of functional competence, the ability to apply one's specialized knowledge expertly and effectively under all sorts of varying conditions, to solve the problems of procurement as the engineer analyzes a problem of design and construction, as the doctor diagnoses and prescribes for a physical ailment, as the lawyer interprets the principles and precedents of jurisprudence to a given set of facts—this barrier has been largely overcome.

Professional status is not important to the purchasing man. It doesn't make him one whit the better buyer. But the recognition of this specialized functional skill, acquired through training and experience in buying, and applicable wherever there are procurement problems to be solved and purchasing problems to be administered, is vitally important to management.



6

Materials Are Purchased To Accomplish A Purpose

DURING wartime, Purchasing Agents have been called upon to buy a variety of products and materials which have never before appeared on their requirements list.

In some cases this has been due to the fact that their companies were engaged in lines of manufacture for war use, different from the regular company activity and requiring other materials. In some cases it has been due to the scarcity or utter unavailability of standard materials, making it necessary to find alternative or substitute means of accomplishing comparable ends. Among the substitutes used were many new materials, the results of greatly accelerated technical progress under the spur of wartime necessity, or those of recent development whose general acceptance would normally have come more gradually, over a period of several years.

Some of the substitutions have been frankly a make-shift, or unsatisfactory in one way or another, so that everyone will welcome the opportunity to return to the normal, time-tested specifications as materials become more readily available once again. Some of them, however, have been surprisingly successful, revealing special advantages of their own which will establish them as preferred materials for permanent use, replacing the former practice. In any case, as new materials have come upon the market and new supply facilities have been developed, the market balance of competitive materials has been permanently altered.

This experience has stressed the basic fact that all materials are purchased solely for the purpose of accomplishing a purpose in manufacture, and not for their own sake or because of precedent. Management, production, and purchasing are all interested in producing an end-product. The responsibility of purchasing is to secure materials that will do the job adequately, and then by refinement of selection to secure the materials that will do the job best. Sometimes this decision will involve changes in the proposed methods of production.

Secondly, it has revealed that there is not only one, but a great variety of possible answers to this question of materials, some of which have scarcely been explored, and some of which would be ruled out of consideration if established specifications were to be rigidly observed.

Thirdly, making a virtue of wartime necessity, it has shown that the most logical and fruitful avenue of trial and appraisal is through the purchasing department, with its responsibility for finding the best material for the job. This does not argue that the purchasing department should have unlimited authority for substitution; the final decision must be coordinated with the responsibility for getting results from the materials. But no one is more conservative than the production man who knows what results he can get from familiar materials,

even though those results may be susceptible of considerable improvement. But the purchasing man, from the very nature of his office, is in contact with all possible alternatives, has the responsibility of exploring all possibilities, and is free from the preconceptions and prejudices involved in use. Under wartime conditions he has had extraordinary authority for substitution. In peace time he should retain at least the authority for recommending, for presenting relative values and for insisting upon a fair trial.

For this situation will not end with war; it may even be intensified in the competition for post-war markets, when every advantage of better materials, or cheaper materials that accomplish like results, will be essential to industrial success. New materials that are now channeled wholly into war uses will be available for application to all sorts of products. There has been some fantastic predictions on that point, concerning the bright new world in which everything, it seems, is to be made of plastics, or light metals, or impregnated wood, and plants run exclusively by electronic control. But there is enough truth in these visions that they cannot be laughed off lightly; they must be analyzed and tested, that the truth may be sifted out and applied.



There is the further possibility that supplier lists may need a thorough revision, not only to take advantage of new materials, but because there is no assurance that all suppliers will go back to the manufacture of their pre-war product or will be equally progressive in providing modern materials. And there is the further possibility that the buyer's own company may engage in some new or unfamiliar activity that may involve quite a new list of materials requirements.

This adds up to four important lessons for the Purchasing Agent as he faces his responsibilities in post-war industry; (1) that he must keep an open mind, and an actively searching mind, for new materials adapted to his company's use; (2) that the purchasing problem does not start with a requirement of certain materials, but rather a requirement of something to be done with materials; (3) that he must explore all possibilities of materials that might conceivably apply; and (4) that perhaps his greatest contribution to efficient and profitable management lies in initiating the use or trial of such alternative materials, methods and equipment.

7

All Purchase Economies Do Not Show On The Invoice

THROUGHOUT the most critical period of American industrial history, during which the greatest importance and the greatest difficulties have attached to the purchasing function, we have operated under strict price control. To the superficial observer, or the superficial management, who see invoice prices as the obvious or even as the sole measure of purchasing performance, this would seem to eliminate one of the prime reasons for the maintenance of a specialized and skilled purchasing organization. Yet it is a matter of record that under these very circumstances, purchasing has demonstrated its greatest value to company operation—not merely in maintaining the flow of needed materials, but in procurement efficiency and economies that are quite apart from the amount of the vendor's invoice.

It is more than probable that a comparable situation will exist during the period of reconversion and post-war competition—that, in fact, the manufacturer will find himself facing a "pincers movement" in respect to prices and costs, with the Purchasing Agent caught right in the middle.

We may confidently assume that some measure of price control will continue for some time after the war, as a means of preventing inflationary developments. Even more important, the intense competition to recapture civilian markets and to gain a foothold in new fields, aggravated by the increased production capacity built up for war production, will strongly tend to keep product prices down.

At the same time, as industry dusts off the blueprints of its pre-war models and refigures the costs of manufacture, it finds that costs have advanced anywhere from 15% to 30%. A considerable part of this increase is attributable to higher costs of labor, and there is little probability that any substantial relief is in prospect on that score. The problem must be met and solved in terms of purchasing and production economies achieved within the strictures of the opposing pressures.

Since the suppliers are in exactly the same position, mere pressure for lower prices will not avail, nor would it be good purchasing policy to jeopardize the position of supply sources already hard pressed at a time when the utmost in constructive cooperation is called for.

Rather, the Purchasing Agent must seek these economies in the form of better materials, more strategically located suppliers, getting more product from less material, more cuts per tool, more strength per pound, more value per dollar. Purchasing and production must work together closely for ultimate economy of product, and frequently production economies resolve themselves into purchasing problems of procuring more efficient equipment and tools, and more suitable materials with which to work.

In wartime, even though cost was not so pressing a consideration, the Purchasing Agent has made these problems his own for somewhat selfish reasons. For with more efficient utilization of tools and materials, fewer rejects, less waste, and more effective conservation, purchase requirements were held to a minimum and the burden on purchasing was lightened to that extent. In the period ahead, this incentive is reinforced by the motive of economy, and of economic necessity, to enhance the competitive position of the company and to safeguard its profit position. Dependable procurement has kept the wheels of industry turning for war production. Economical procurement has an equally vital role to play in keeping those wheels turning when industry manufactures the products of peace.

Even when we make allowance for the increased percentage of labor cost on the new balance sheets, purchases represent well over 40%, on the average, of the manufacturing dollar. This large sector of cost is a logical place to look for economies. It is also a potent source of economy, since even small percentage savings on the large quantities involved will result in substantial totals.



Management will demand greater purchasing efficiency in the days to come. It will do so because wartime purchasing has demonstrated the potentialities in this direction. And this greater efficiency can be achieved because those potentialities have by no means been exhausted. What we have learned in wartime purchasing is still to be applied in meeting the problems of peace.

It will be well for both purchasing and management to remember that many of these savings will never be shown in invoice prices. It will frequently—though not necessarily—develop that the higher invoice figure represents the greater value per dollar. It is more than likely that the significant purchasing economies will be hidden, like hidden taxes and hidden costs. Yet those basic objectives of finding the most suitable material and the most advantageous source, the most economical quantities for shipment and storage, efficient scheduling and utilization, and effective coordination with production departments on the one hand and suppliers on the other, are at the very heart of the successful purchasing program.

8

Initiative Is On The Side Of The Purchasing Agent

DUE to the necessities of war, American industry has been working under a so-called "controlled economy" which ostensibly has the effect of suspending the operation of economic law—a gigantic, if not altogether impossible assignment. By and large, the controls have been quite as effective as could have been expected in seeing us through an emergency of abnormal conditions in all phases of our national life. They have implemented and made possible our splendid record of war production. But the mounting pressures on every hand give evidence that economic law, though under leash, is still at work—the pressure of public debt, of deferred maintenance and demand, of widespread purchasing power straining to be spent, of inflationary forces, of accumulating surpluses. One of the great problems facing us today is how the controls can be released—as they must be released—in such a way that the economic pressures will not overwhelm us.

This experience has confirmed us in the knowledge that economic law will eventually prevail—that in the long run supply and demand will determine markets, that profitable private enterprise is the most sound and effective means of attaining high living standards, and that competition is the great compensating factor. But at the same time we have learned that some of our traditional economic concepts and definitions must be revised.

A case in point is the popular concept of buyers' and sellers' markets, occurring when supply and demand are out of balance. Traditionally we have defined them in terms of that unbalance, but also in terms of the opportunism fostered by those conditions—the price excesses, up or down as the case might be, and the selective discrimination toward customers or sources, that pushed the pendulum to even greater extremes.

In so doing, and by condoning the opportunism, we flattered ourselves that we were being objective and realistic. If we were not actually unaware, we were at least indifferent to the fact that buyers' and sellers' markets are inextricably related to the business cycle, in more than a symptomatic way, and are a contributing cause as well as an effect of the fluctuations that periodically disrupt our economy.

We have just been through a period that was potentially and technically a sellers' market, but which curiously had all the outward effects of a buyers' market, for the reason that the dominant buyer in this case happened to be the government, with authority and power of control. We have learned a number of things from that experience—that opportunism is not a policy, but the absence of policy; that national interest (which happens, in this case, to coincide with the buyers' interest, because government happens to be the buyer) is a sounder objective than self interest.

and serves self interest more effectively in the long run; and that self control is the only alternative to artificial economic control with all the hazards that the latter implies.

Perhaps the best way of defining the new concept of buyers' and sellers' markets is to borrow a term from the military strategists and commentators—"the initiative". In sellers' markets the initiative is on the side of the seller; in buyers' markets it is on the side of the buyer. The initiative is the power of making decisions and dictating policies, rather than having them forced upon us. The initiative is with the side that is carrying the ball, or the side that is at bat, the side that is in a position to score.

And we have learned from military experience that the initiative can be lost at a moment's notice through lack of a plan, or through improper timing, incomplete information, indecision, or reliance upon tactics and equipment that seemed invincible only a short while ago but are now outmoded.

The initiative in industrial distribution and markets is now passing into the hands of the buyer. It is shown by the increasing number of salesmen who are again taking to the road; by the new competition between materials; by the gravity of the surplus disposal problem; by the nationwide concern over the plight of small business and of surplus capacity; and particularly by the big question mark that qualifies every survey of post-war prospects: The purchasing power exists to support employment and prosperity, but what and how will buyers buy?

This condition has been pointed out to purchasing men over and over again in recent months. It is greatly to the credit of purchasing leaders themselves that it is being presented not only as an opportunity, but as a responsibility for the Purchasing Agent, a power to be wielded wisely. For the potentialities are enormous, for the individual company and for the whole industrial economy. And the answer lies largely in the hands of those who have the initiative, that intangible but very real power of policy decision.

Opportunism, the exploitation of economic unbalance as it may exist at any given time in any area, is not a policy. The constant search for ultimate values, the development of good business relationships and the strengthening of suppliers, constitute a policy to which all industry can subscribe, and in which the purchasing executive can properly exercise the initiative.



Interested In SURPLUS?

By A. N. WECKSLER

Here's how you can get on the lists of the Treasury Department's Surplus Sales Division, and how your requests will be handled

Careful classification and decentralized mailing lists weed out the curiosity seekers



TREASURY DEPARTMENT
PROCUREMENT DIVISION
WASHINGTON (25)



This will acknowledge receipt of your request to be placed on the mailing list to receive notices of offerings for sale of Government owned surplus property.

In an effort to effect economy in time and manpower, our mailing lists are devised to reach regular trade channels (those interested in purchasing for resale) of the commodities handled by this office. Funds received from the sale of surplus property are used for the same purpose as are funds derived from the sale of War Bonds and if we can reduce the cost of making these sales by making "mailings" only to potential purchasers our Government will benefit.

Since you have not indicated your type of business and the specific commodities in which you are interested we are unable to place your name on a list to receive proper notices. We suggest, therefore, that you check below the information pertaining to your business and return this form (completed) in the envelope enclosed for which no postage is required.

TO ASSURE PROPER CLASSIFICATION, CHECK ONLY INFORMATION PERTAINING TO YOUR BUSINESS

We are:

- ☐ MANUFACTURER
- ☐ WHOLESALER
- ☐ RETAILER
- ☐ CHAIN
- ☐ COOPERATIVE

Condition of Merchandise Must Be:

- ☐ NEW
- ☐ USED
- ☐ SALVAGE

Our Phone No. is _____

Name of Person to Call: _____

CHECK BELOW ONLY SURPLUS COMMODITIES YOU MAY WISH TO PURCHASE FOR RESALE

FURNITURE

- Household Furniture
- Office Furniture
- Institutional Furniture
- Industrial Furniture
- Floor Coverings

MACHINERY

- Construction Equipment
- Mining Machinery
- Farm Machinery & Equipment
- Industrial Trucks, Gas or Electric (Factory & Warehouse)

(over)

77122-57263

This letter is used as the basis for classification of potential buyers

AS the pressure of accumulating surpluses increases, the Office of Surplus Property, Procurement Division of the Treasury, is seeking to single out the earnest and qualified buyers from the 150,000-odd inquiries concerning surplus sales which have been received.

A focal point in this process is the decentralization of mailing lists, combing out in this way such buyers as are not qualified to purchase under existing policies and regulations. Another prime objective is clearly to define the buying requirements of the prospect so that the circulation of bid lists can be concentrated among those actively interested.

The overall objective is to bring all activities on a regional level. The regional offices of the Procurement Division will send notifications of things to sell only to firms located in the States of the territory served by that office.

This will not mean that a purchaser will have to limit his purchase only to merchandise declared to the region in which he is located, or that he can make purchases only from or through the regional office of that territory. It does mean, however, that he will receive "notification of things that are for sale" from only one regional office, regardless of location of the inventories, which may be anywhere in the United States.

A purchaser's name will appear on the mailing list of only one regional office—the one in whose territory his buying office is located, and that regional office will keep him informed of all available merchandise in his line in the United States, and the location of the regional office where it may be purchased.

Each regional office will sell surplus property located only in its own

OFFICE OF SURPLUS PROPERTY

Procurement Division, U. S. Treasury Department
Washington, D. C.

Telephone: District 5700

Deputy in Charge of Sales and Merchandising—Russell C.
Duncan—Extensions 372 and 374

Assistant to Deputy Director—Sam S. Fretz, III—Extension 384

Division No. 1—FURNITURE

W. C. Lehman—Ext. 2310

Section A—Home Furniture
Section B—Office Furniture
Section C—Floor Coverings

Division No. 2—MACHINERY

Ed Phillips—Ext. 2361

Section A—Construction
Equipment
Section B—Agricultural
Machinery
Section C—Misc. Machinery
(including Industrial Trucks)

Division No. 3—GENERAL PRO- DUCTS

Homer Hilton—Ext. 2361

Section A—Photographic
Equipment
Section B—Containers
Section C—Livestock
Section D—Electrical
Section E—Miscellaneous Light
Equipment

Division No. 4—AUTOMOTIVE

Lee Moran—Ext. 2175

Section A—Cars, Trucks,
Motorcycles
Section B—Auto Parts
Section C—Auto Equipment and
Accessories
Section D—Tires and Tubes

Division No. 5—HARDWARE

John H. Mize—Ext. 2357

Section A—General Hardware
Section B—Plumbing and
Heating
Section C—Mechanical
Rubber Goods
Section D—Sporting Goods
Section E—Housewares

Division No. 6—TEXTILES AND WEARING APPAREL

Lee Fleming—Ext. 2311

Section A—Wearing Apparel
Section B—Fabricated Textiles
Section C—Footwear

Division No. 7 — MEDICAL AND SURGICAL

Fred Brill—Ext. 2109

Section A—Drugs and Medicines
Section B—Hospital Furniture
and Equipment
Section C—Surgical Instruments
Section D—Optical and
Laboratory Equipment
Section E—Dental Equipment

Division No. 8—PAPER AND OFFICE SUPPLIES

C. A. Dickerson—Ext. 2192

Section A—Paper
Section B—Office Supplies
Section C—Office Equipment
Section D—Miscellaneous

operative), and also whether the prospective buyer is interested in new, used or salvage materials.

The final process of elimination is accomplished through a check list, breaking down the eight commodity classifications under which the surpluses are handled into the broad product groupings. This permits a fairly close correlation between the listing and the particular product in which the prospective buyer is interested.

A similar letter has been devised to be sent to new applicants seeking to be listed as prospective buyers.

From the information contained in these letters the regional office will be able to classify the firm in accordance with commodities in which they are interested, location, status, etc. At this time the address on the letter will be compared with the information on the card on file and corrections made, if necessary.

On the card and each time the name of the firm is used, the address will be followed by a significant number, in code, for quick identity. This will be helpful in refiling names, for identifying firms to whom communications are addressed, etc. The code number will be composed of the commodity division number, first letter of the business status of the firm, and first letter of the condition of the material in which the firm is interested.

Thus the code number 1-M-N would identify a furniture manufacturer interested in new merchandise, because Division No. 1 is furniture, "M" is the first letter in the word

Continued on page 340

Universal Press Photo

region, except such as may be allocated to it from other regions by the commodity directors in the central office. Sales may be made to any firm eligible to make purchases, regardless of location of the firm's buying office but at no time will it be permissible for any regional office to send notifications of things to sell to potential buyers outside of its own region.

In order that prospective purchasers in each region may be informed of what merchandise is available in all regions, mail pieces for this purpose will be prepared periodically for each commodity division. These mail pieces will "feature", "highlight", or "display boldly" the merchandise declared to the regional office making the mailing. In small

"display" will be listed merchandise (in some commodity classification) declared to the other regions and which are in short supply because of critical status, or in too long supply to be absorbed by the markets in those regions.

The process of establishing a listing is largely one of screening and classification. The first group of prospective buyers to be screened is the group which has already been listed.

A letter has been formulated and will be sent for the purpose of clearing present mailing lists of "dead" names and information. This letter incorporates a questionnaire designed to determine the class of buyer (whether manufacturer, wholesaler, retailer, chain or co-



RUSSELL C. DUNCAN

Deputy in Charge of Sales and Merchandising
Office of Surplus Property



MOLDING

Plas t

THE inherent qualities of the man-created materials that we known as plastics are their "open sesame" to the markets of the world in the form of industrial and civilian products. Ability to withstand manhandling within reasonable limits of endurance, lightness of weight, virginal beauty, contempt for wolves in the guise of acids and alkalis, and unique electrical qualities give them high standing in the minds of creative designers and shrewd manufacturers and merchandisers who appreciate the merits of these many factors from the standpoints of utility, eye appeal, and profitable sales.

And now that the new technological era is beginning to dawn, it is none too early for the Purchasing Agent to become intimately acquainted with the Plastics family. It is a very nice family. He will find that Polly Styrene and Ethyl Acetate and her cousin Ethylene have some very charming qualities. Likewise he will find that compounds of carboic acid and embalming fluid which in industrial circles are styled phenol-formaldehyde, and their offspring are quite versatile. And he will understand why the synthesizing of urea, normally a product of animal metabolism is indeed more than a fortuitism.

Some plastics enthusiasts claim that you can make almost anything you want to make, with plastics. Plastics are not that good. In the

first place machine molded plastics are definitely restrained or inhibited in their conquest of markets by two physical factors, namely, lack of physical strength comparable to any of the metals, and quite definite limits to the size and weight of products that can be machine molded. The practical limit now is two pounds on high speed presses and 20 pounds in "slow motion" compression molding. Larger sizes are possible, as evidenced by the recent molding of rolling mill bearings weighing 80 pounds. Presses of the required strength and size to withstand the enormous pressures involved for molding units of heavy weight are not generally available. However, the pulp molding and bag molding processes described later have made it possible to mold things as big as refrigerator cabinets and Old Town canoes.

Knowledge of Processes

Long established standards and experience have endowed the Purchasing Agent who is in the market for metal products of one kind or another, with a working knowledge of the ferrous and non-ferrous metals and their alloys. He also has an understanding of the many methods of production—die, sand and centrifugal castings, extrusion, stamping, spinning, forging, drawing, sheet metal forming, machining and powder metallurgy. And he is more or less familiar with the processes

that are a part of metals production ranging from heat treating down the line to tumbling, and bonderizing for the finish coat.

The plastics field puts him back in the elementary grades again, for in addition to the many things that buyer and user should know about the different kinds of plastics and their utility, he should also be familiar with the methods of fabricating products. There are just as many tricks of the trade in plastics molding as in metal working. The molders will say that there are twice as many. The production and finishing of plastics products are similar to metal working processes in many respects. Plastics are molded, cast, extruded, stamped, preformed, drawn, sheet formed, welded, machined and laminated. And the resins are "alloyed" with varied types of fillers. Also, many of the machining and finishing operations used in metals production are a part of plastics processing.

But new techniques are involved, for an entirely different type of material is being processed. Patently it is important that the man buying plastics have a fair working knowledge of the production and finishing processes that he may intelligently talk with plastics specialists, and satisfy himself as to the "why" of design changes and costs, or why an expensive molding material should be used instead of one of low cost. Thus equipped he will

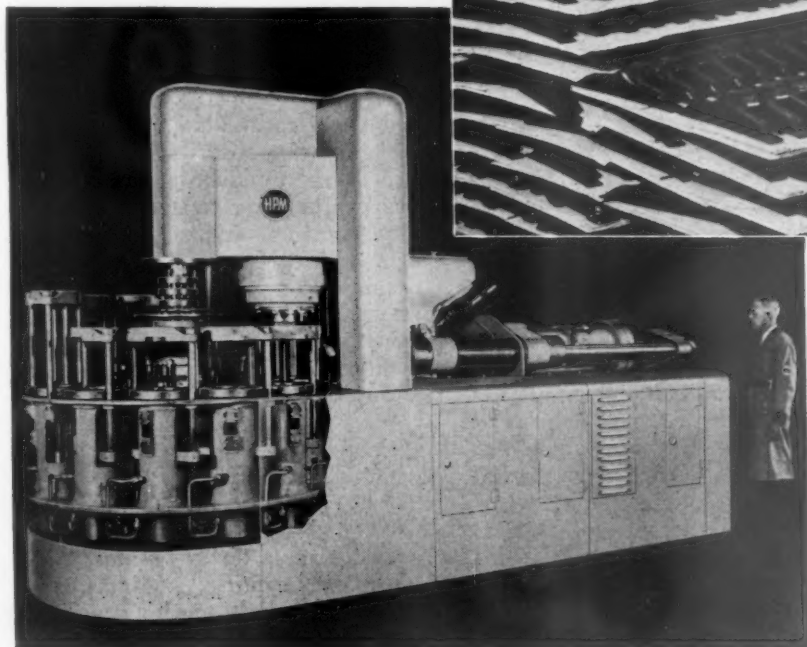
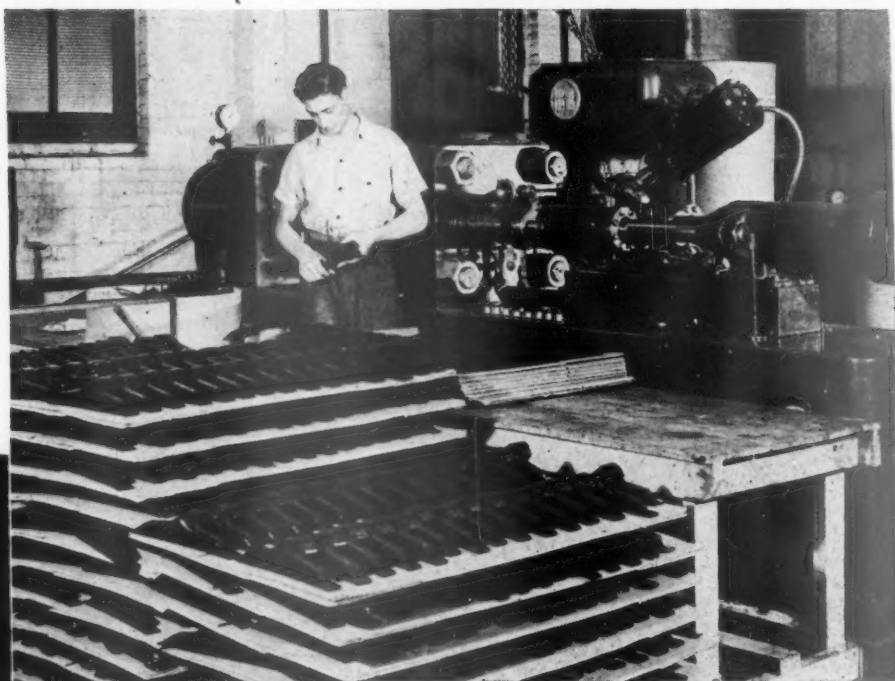


Plastics PRODUCTS

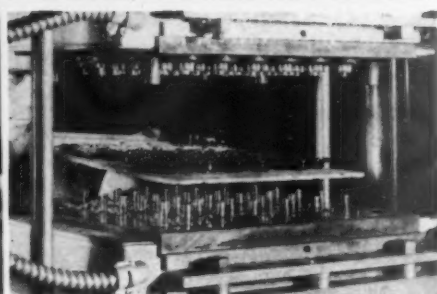
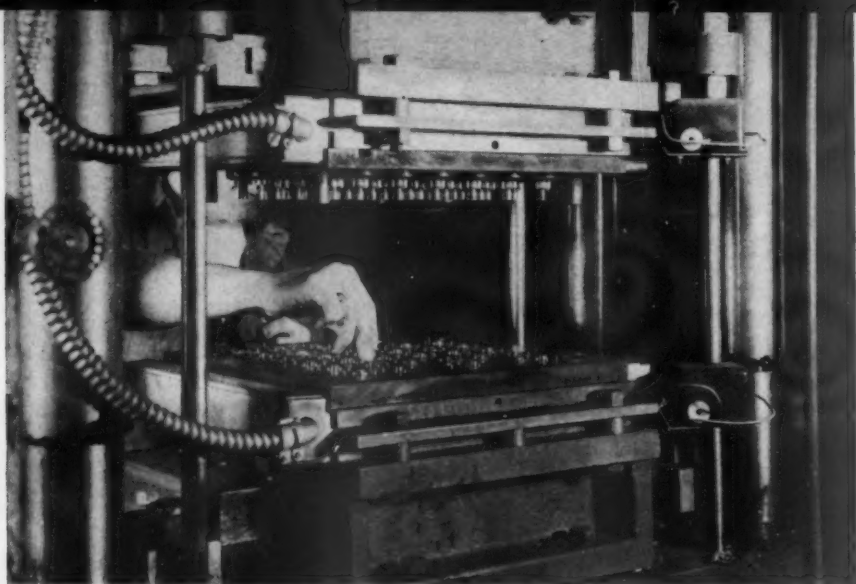
By GEORGE E. HENRY

The versatility of plastics and their adaptability to industrial uses reflect not only the properties of the materials themselves, but the various fabricating methods that have been developed.

Photographs by courtesy of The Hydraulic Press Mfg. Co., Rex Co., and Extruded Plastics, Inc.



1. A battery of 100-ton self-contained compression molding presses for operation of semi-automatic molds with knockouts.
2. A battery of self-contained transfer molding presses.
3. Injection molding machine used to produce intricate plastic moldings on mass production basis.
4. Injection molding machine incorporating a revolving turret with several mold stations. Each station is fitted with an individual injection mold. At a predetermined position, molds are automatically opened, and the cured parts are ejected.



Three steps in operation of a compression molding press with 36-cavity die. Metal inserts are placed over each cavity; preformed thermo-setting molding material is positioned over each insert; 36 completed electrical connectors are automatically ejected after two-minute curing cycle.

know why some things either can or cannot be done and why the functional "dream" design of the custom or plant designer is not practical from a production standpoint even though it might be a whiz from a marketing standpoint.

Minimizing Rejects

There are two score or more good reasons for rejects or production failure in plastics molding. Most of these are the molder's headaches, but any well experienced buyer well knows that he also should have an acquaintanceship with the possible causes for product failure or an unusually high percentage of rejects. There are some manufacturers whose complaints about high costs, excessive rejects, or blemished products have been countered with the excuse, "We followed your design." Reliable molders will not try to mold a design that in their opinion paves the way for trouble with customers. And so right here are two good reasons why prospective users of plastics should restrict their dealings to technical men and molders who have the "know how" and the "know what" of plastics production.

Production with plastics obviously follows certain basic laws, but as the plastics industry is yet in swaddling clothes, the science of production has not been mastered by many persons. In fact, the plastics field is largely made up of specialists.

Some companies specialize in the thermosetting phenolics, some mold only the thermoplastic materials, and some mold all types but do not do all types of plastics molding. Then there is the matter of custom machining and fabricating. Companies that specialize say in fabricating the phenolic cast resins look askance at jobs involving the polystyrenes, acetates or other members of the thermoplastic group.

However, production with plastics has reached that point where there is little chance for product failure or excessive costs—provided you employ technicians who know plastics, plastics product design, and production.

Binders and Fillers

It is well to understand the nature of the materials that the molder has to work with. The basic materials are binders and fillers. The binders are the resins and come in powder or granular form. These can be used with or without fillers. They are extensively used in liquid form for making the well known plastic laminations of paper, or fabric, or wood veneers; and for adhesives, coating or painting materials, and as binders for holding the abrasives in grinding wheels, and for casting.

Fillers are used with the resins to impart different qualities that do not exist in the resins *per se*. The adaptability of the phenolic plastics,

for example, for a myriad of special uses, is made possible by different types of fillers. The most commonly used filler is wood flour, which makes possible the all-purpose phenolics. Alpha pulp is used in the ureas. Other types of fillers used largely with the low cost phenolic molding resins include cotton flock, chopped fabrics, paper, mica, and asbestos, and infrequently graphite and silica in conjunction with other admixtures. These fillers are the key to the hundreds of varying phenolic molding materials now available for specific uses.

Cotton flock, for instance, enhances impact strength. Rag fillers, while they impart increased shock resistance, detract from other properties, give a poor surface finish, and present machining difficulties. Asbestos fillers enhance the insulating and heat resistance values as well as resistance to acids and water, though they work havoc with machining tools. Mica, while making for improved electrical qualities, causes extreme brittleness and develops a material with poor machining qualities. Graphite fillers, which are usually used in conjunction with one of the other common fillers, make for easier molding and increased acid resistance. The graphite filled resins are used where frictional resistance is important.

Various kinds of plasticizers are used with the cellulose compounds and some synthetic thermoplastics to control plasticity and give toughness to the molded article. If these are of a volatile kind they will have an important bearing on the end use of the product, for their slow evaporation may cause warpage and dimensional change due to shrinkage. However, the use of plasticizers is a complicated procedure. It may be that the buyer of plastic parts should not lose much sleep over it aside from having a general knowledge of effects from the standpoint of mold design, molding shrinkage, leaving the responsibility with the molder.

Compression Molding

There are a dozen or more processes for making products with plastics. In the trade lingo you will find compression molding, injection

molding, transfer molding, jet molding, castings, extruding, drawing, machining, preforms and preforming, bag molding, pulp molding, blowing, die cutting, laminating, and some one may even ring in cold molding once in a while.

Compression molding heretofore has been the simplest and most economical method of molding thermosetting materials—and the most extensively used because the thermosetting low cost phenolics and the ureas have been the most extensively used plastics. However, for small objects of complicated design it is likely to be supplanted by the automatic transfer molding process and the jet molding process, which are later described. Bear in mind that these are the materials that are heat hardening in the proc-

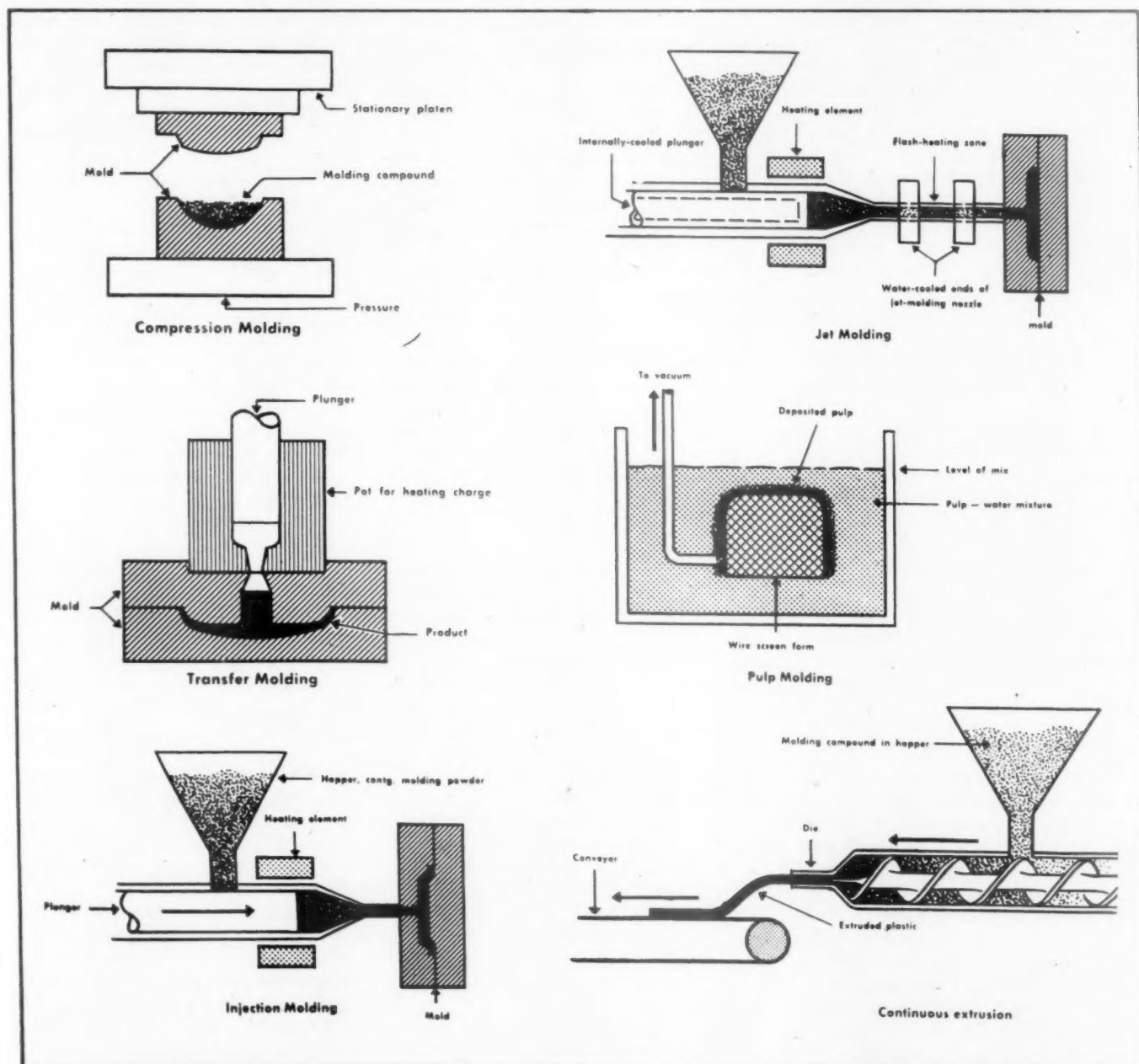
ess of polymerization or molecular changes that create entirely new materials. The thermoplastics are those that are heat softening and become hard upon cooling.

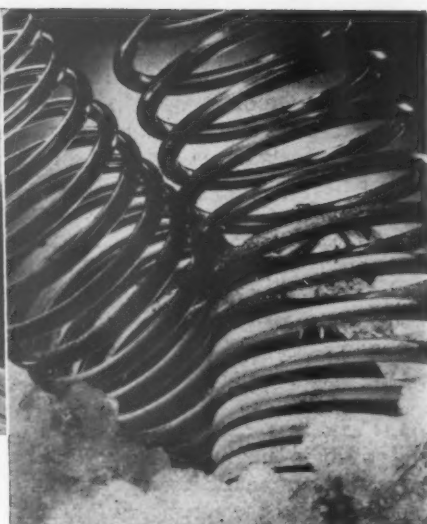
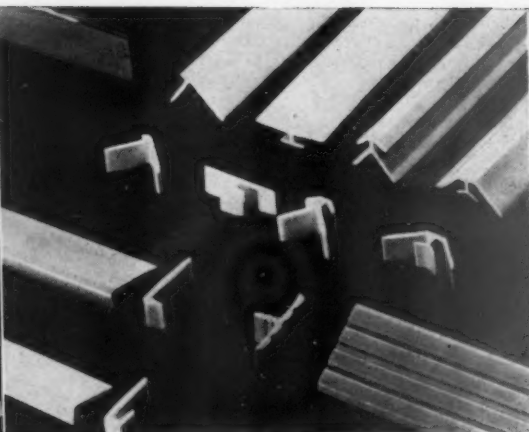
Compression molding employs pressure—and a lot of it. Modern presses utilize pressures up to 6000 pounds per square inch. This means that both molds and presses must have the stamina of an army bulldozer—or else. It also means that pins and inserts may suffer a fate similar to that imposed on royal palms by a tropical hurricane.

Materials for compression molding may be in the form of a powder, the granular kind resembling table sugar, or a bulky mass when some fabric filler is used. The granular molding materials bulk about $2\frac{1}{2}$ times the size of the product to be

molded, and the cloth filled may bulk six or eight times larger, entailing the use of a larger molding area to accommodate the "shot".

In the molding process, premeasured amounts of molding materials are placed in the preheated molds, where, after molding, the part is permitted to cure or set under heat for the required period of time depending upon thickness of part molded. The principal disadvantages of compression molding are the high pressure necessary and the possibility of lack of uniform pressure, and a few other handicaps all of which are molder's headaches. New equipment for injection molding of thermosetting materials, which is fully automatic, is claimed to overcome these handicaps, although at present its use is restricted.





Three types of extruded plastic products—filament, tubing, and architectural shapes.

One of the important developments in the molding of thermosetting materials is that of so-called "preforms". Molding materials are accurately measured and cold pressed into pellets and blanks called preforms, on automatic machines that turn them out as lozenges or aspirin tablets are pressed out in a home remedy factory. Materials employing rag or paper fillers are not easily preformed.

This preforming provides comparatively low bulk ratio to molded product, accuracy of portion, uniform heating, less waste, easier handling, and subsequent lower costs. By the use of preforms as many as 200 small units such as bottle caps can be molded at one time.

The introduction of preforms has made practical the use of dielectric heating for preheating thermosetting materials prior to compression and transfer molding. Among the advantages gained are quick, thorough and uniform heating regardless of weight, as the rate at which heat is developed is directly proportional to the power input. Dielectric heating has made it commercially practical to mold pieces thicker than $\frac{3}{8}$ of an inch.

Jet Molding

Transfer and jet molding are comparatively recent developments for molding thermosetting materials. The procedures are similar to injection molding of thermoplastic materials, or the die casting of metals, and permit the faster production of thermosetting materials.

In transfer molding, the required portion of molding compound, bulk or preform, is placed in a pressure chamber above the mold where it is heated and then forced into the

mold. The process offers several distinct advantages over compression molding. In addition to increased molding speed, one of the important advantages is that incident to the preheating of the material, it flows more readily, less molding pressure is required, and there is little hazard of disturbing or damaging inserts, or pins or blocks for openings that may be in the mold. There is greater uniformity of cure, less wear and tear on the molds, and better maintenance of dimensional accuracy.

Jet molding is characterized as a modification of the transfer method. It makes possible the continuous production of thermosetting materials by the injection molding principle. The material is heated prior to injection, becomes highly fluid and is injected into the heated mold where it sets quickly. Parts molded by this process are said to be extremely dense, free from porosity, and the molding of intricate parts with numerous delicate inserts, thin sections and close tolerance is said to be accomplished with ease and rapidity—all with a minimum of rejects.

Compression molding is also used for molding thermoplastic materials because it makes possible the molding of units weighing up to 20 pounds and more on commonly used equipment, whereas the injection method used for molding thermoplastics permits of units weighing say up to two pounds. The compression molds, which are heated for curing the thermosetting plastics, must be cooled when the thermoplastics are molded.

Injection molding is the standard procedure for molding thermoplastic materials. The firm molding powder is automatically fed in exact quantities from a hopper into a

heating chamber in the molding machine where it is converted into a near-liquid mass. This is forced into the comparatively cool mold cavities where it solidifies. As the finished piece is being ejected, a new charge flows into the heating chamber. The molding cycle is rapid, and on fully automatic machines it may be as short as ten seconds as compared with molding cycles of 30 seconds to several minutes in compression molding. By the employment of multiple cavity units, production of small units may approximate 500 per minute.

The principal drawback to injection molding is the weight limit. Machine capacities range from a few ounces up to 16 ounces, though a few machines for commercial use that will handle 32-ounce charges have been developed. This matter of size limitation should be interpreted from the viewpoint that few of the hundreds of thousands of components, decorative units, or things used manually weigh as much as two pounds; furthermore, a plastic cabinet or housing of two pounds weight is a goodly sized object.

Injection molding assures good dimensional accuracy; delicate inserts may be used without hazard of breakage or misplacement; the finished product is nearly perfect and finishing operations are practically nil. There is little or no waste in the molding of thermoplastics, for all excesses and rejects or broken units may be remelted and remolded.

Apropos of the perfecting of injection molding for both the thermosetting plastics and the thermoplastics, the question arises as to which may be the cheaper. Exclusive of the large units which must be com-

(Continued on page 324)

EFFICIENT FORMS *Speed* PURCHASING PROCEDURE



J. T. HILLENBRAND,
Purchasing Agent,
Lyon Metal Products

Time and effort are conserved by these forms developed in the Purchasing Department at Lyon Metal Products

INCIDENTAL to his multitudinous duties as General Purchasing Agent for Lyon Metal Products, Incorporated, Aurora, and Chicago Heights, Illinois, J. T. Hillenbrand has developed a number of Purchasing Department forms that are of more than passing interest.

The intrinsic value of these forms lies in their efficient simplicity born of analysis of many types of Purchase Department forms for kindred services. Their efficiency and practicality are attested by their application to the vastly expanded procurement requirements of a big company that was overnight converted from a highly specialized peacetime production to an undreamed of diversified wartime production.

A few years ago Lyon Metal Products was devoting its large batteries of shears, punch presses, double crank presses, deep drawing and hydraulic presses, 40 powerbrakes and more than a hundred welding units to the fabrication of sheet metal products in the form of

store and factory fixtures, shop and tool room equipment, steel furniture, institutional equipment, and miscellaneous products for non-defense markets. Then came the war and that insurmountable barrier peacetime production—priorities.

There was but one course for Lyon to follow, and that was to dedicate its forty years of sheet metal fabrication experience and its twelve acres of manufacturing space to the war effort. Management evolved an aggressive campaign to produce defense inquiries from private industries, and with the aid of a barrage of promotion effort, its sales and field representatives became a huge posse actively engaged in a nation-wide quest for sub-contracts. A War Production Board was formed within the organization which determines how Lyon can serve other war industries and Uncle Sam.

General Purchasing Agent Hillenbrand is a member of this board, which consists of executives representing all major departments. The

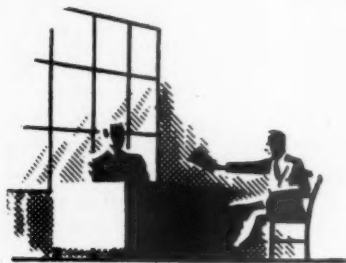
Purchasing Department played an important role in the general co-operative effort to procure sub-contracts. Lyon Suppliers were personally interviewed on their prime contract activities and sub contract possibilities, the Purchasing Department reporting to management on a special form provided therefor. The whole campaign is of special interest, and is fully described in a booklet "How One Company Tackles the War Production Problem", which Lyon Metal Products printed at the request of the National Association of Manufacturers and presented to the War Production Board.

The result of this aggressive campaign was the complete conversion of the company's plants to war production in the processing of several thousand war contracts. Lyon is now at work on a full range of diverse prime contracts and sub-contracts from aircraft parts in steel and aluminum to pre-fabricated ship parts, from ordnance items to interior parts and fittings for tanks and mobile units, pre-fabricated parts for ships and ship furniture.

Purchase orders to the number of 20,000 are being issued annually

PURCHASING

P.A.'s ARE HUMAN



By W. A. SCHERFF

Salesman and buyer are two human beings with jobs to do, and if they will bear that human angle in mind both will do a better job

BILL, here's your new office. From now on you're the Purchasing Agent." That was how I was greeted one morning upon arriving at the factory after a tough drag back from a week's trip to Chicago.

Believe it or not, I'd spent all eighteen years of my business life selling one thing or another. Now I was being told to take the other side of the desk. Me—a Purchasing Agent? What did I know about it? But that was the boss's gamble. And what a swell chance to learn what the P.A. thinks about! One day I'd be back selling again. And now that I am, it seems only fair to admit that P.A.'s are human—that more times than not, they get meager credit for a very tough job.

Why tough? Because the P.A., particularly the industrial buyer, is the center of a high-pressure area. He is under pressure from Production who says, "How in hell can I keep my factory and assembly line running if you don't get the material in on time?" Inspection says, "Why don't you make your suppliers send in decent stuff? We have to reject half of it." Management puts the heat on because "Costs are too high. You'll have to bring down material costs." And Sales yelps, "You'll have to buy lower so that we can

drop our price to meet competition."

The Purchasing Agent is the perfect alibi for all four of these divisions of practically any organization. It's so simple to pass the headaches on. Unfortunately the P.A. is the last in line—so he can't pass them along. He just has to take it. And that isn't quite all.

Management looks at purchasing as a service department. It costs money and it isn't always easy to see what it produces in return. The factory makes the product that makes a profit. Sales sells it and that brings in dollars. The purchasing department? They just spend money! So, when a salesman finds a P.A. in bad humor some morning, he shouldn't blame the man. Perhaps he's just been needled four ways a few minutes before.

There is much to be gained by both Purchasing Agent and salesman if they keep this background in mind. The salesman can't change the price his own company gives him, but he can be sure the buyer is well loaded with the reasons for that price. He can be careful about his delivery promises, and he can check the qualities of deliveries from time to time before they leave his plant.

There's something more the salesman should realize. He doesn't help his cause by frequent "drop-

ping in"; he's just taking up some badly needed time from a man who has his hands full. If he times his calls only as he can contribute some information or service that will help the P.A., if he is careful to make a concise and orderly presentation of his products or services at all times, then he'll never have trouble with a "hard-to-reach" Purchasing Agent.

The Purchasing Agent, on the other hand, can gain much if he will just remember that the salesman doesn't have pressure from as many points but that what he does get from his sales manager is plenty. If the buyer will keep this in mind, he'll seldom keep a salesman cooling his heels. He will either see him quickly or take a minute to arrange courteously for another time. He will listen carefully to what the salesman has to say—on the first interview at least. After that the man will have proven his value or not, as the case may be. And if the man hasn't anything to offer, if he isn't someone you want to see at regular intervals, it is much the kinder thing to do to tell him so then.

It has been said that a salesman is the easiest person in the world to sell. I'm inclined to agree. And the Purchasing Agent who keeps this in mind along with the cause of the drive behind the salesman—his necessity to get an order—can capitalize these two points to his great and lasting advantage. Take the trouble, in your initial contact with a salesman, to "sell" him your side of the picture. Be just reasonably careful about costing salesmen time. Exercise everyday courtesy. Then your fame will spread far and wide among the selling fraternity. This bread "cast upon the waters" will return a thousandfold.

Because any salesman will break his neck to get and hold business from that kind of man. Because it's really you as a person, Mr. P. A., for whom the salesman turns hand-springs. And when you get him doing that you can bet that he will do his part to forestall the basic causes of the pressure that is put upon you.

These are the ideas of a salesman who was assigned to the buying job in his company and spent two of the toughest years in purchasing history on the other side of the desk. His experience has resulted in some good advice for buyers and sellers alike.

STAY OUT OF COURT

By LEO T. PARKER

Modern legal decisions stress the elements of common sense, reliance upon facts, and the basic intention of contracting parties, discouraging recourse to litigation.

FEW Purchasing Agents spare time to study and accumulate legal knowledge and thereby recognize indications and final solution of law suits. For this reason many Purchasing Agents are compelled to perform their legal duties without such regard to *modern* law. This is so with many other classifications of persons. For example, a majority of writers, lecturers, and public speakers do not have time nor inclination to know the legal distinctions between new and only relatively older higher court decisions. Modern higher courts render decisions in accord with modern principles. For this reason "hearsay" law of yesterday differs greatly from the principles of modern law. Basically, the practical law of today is: *Eliminate law suits.*

Arbitration Is Encouraged

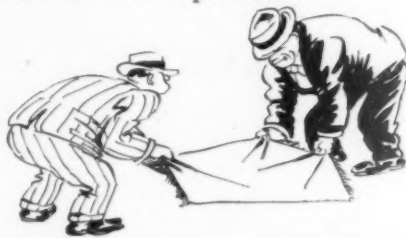
In fact, modern higher courts approve contracts by which contracting parties agree not to enter into a suit and rather to abide by a decision rendered by disinterested arbitrators, experts, and the like.

For example, in *Reed v. Markland*, 173 S. W. (2d) 346, reported August, it was disclosed that the parties to a contract agreed that in event controversy should arise they would abide by the decision of an expert who was familiar with the business to which the contract related. In subsequent legal controversy, the higher court said:

"When parties to a contract agree to submit questions which may arise thereunder to the decision of the engineer, his decision is final and conclusive; unless in making it he is guilty of fraud, misconduct, or such gross mistake as would imply bad faith or failure to exercise an honest judgment."

Actually, the legal effect of this higher court decision is practical elimination of litigations.

Moreover, readers should realize and understand that practical facts can be relied upon by either a buyer or seller to compel either to assume common law responsibilities.



For illustration, in *Drabkin v. Bigelow*, 138 Pac. (2d) 750, reported August, it was shown that a seller filed suit to recover the agreed price of carpets and furnishings supplied for use in certain rooms. The purchaser testified that the carpets did not cover the complete flooring of the various rooms. Also, the purchaser proved that the seller knew the intended uses of the carpets. The carpets were defective in that they were not large enough to cover the floors. Therefore, in refusing to grant a verdict in favor of the seller, the higher court stated law as follows:

Questions of Fact

"We are of the opinion there is sufficient evidence to support the findings and judgment to the effect that plaintiffs (sellers) failed to fulfill their contract to supply the selected carpet suitable in size to cover the floors. Having informed the plaintiffs of the particular purpose for which the carpets were intended to be used, and the plaintiffs having taken the measurements for the carpets, there is an implied warranty 'that the goods shall be reasonably fit for such purpose.'"

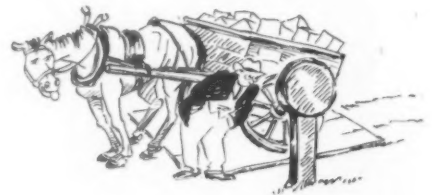
This late and modern higher court decision establishes the law that a seller who knows the *intended* use of his product by the purchaser impliedly guarantees that his mer-

chandise is reasonably suitable and will render satisfactory service for such purposes. In other words, according to this modern higher court decision, *knowledge* of the seller of the intended uses or purposes of his product by the purchaser is exactly no more nor no less than a guarantee that such product or merchandise will prove reasonably satisfactory to the purchaser.

How Many Pounds To a Yard?

Actually, this decision broadly imposes upon the seller the duty to know that his merchandise will produce reasonably satisfactory results when used for purposes previously imparted by the purchaser to the seller, or his agent.

Also, see *Murtishaw v. Glassell-Taylor Company*, 18 So. (2d) 196, reported June, 1944. In this case a buyer and seller entered into a verbal contract by the terms of which the purchaser agreed to purchase a stipulated quantity of crushed rock at \$1.70 per cubic yard. Later after the purchaser had accepted several deliveries of rock, litigation arose over the question whether a cubic yard contained 2,700 or 3,000 pounds. The seller sued the purchaser to recover payment for all shipments on the basis of 2,700 pounds to the cubic yard.



The higher court rendered a verdict in favor of the seller mostly because at no time was the delivered rock measured by the purchaser. The court said that this fact, with other testimony that the purchaser had not complained about prior bills, indicated that the purchaser impliedly consented that a cubic yard of rock weighed 2,700 pounds, as billed by the seller.

Thus, in this case the court based its decision upon the fact that fail-

ure of the purchaser to complain on receiving the various bills mailed by the seller implied that the purchaser accepted the rock on the basis of 2,700 pounds per cubic yard.

Second Hand Values

And again in *Reeves v. Clark*, 18 So. (2d) 223, reported July, 1944, the seller of a motor vehicle sued a purchaser to recover \$350 which the former contended was due on the vehicle. The purchaser testified that he had bought the vehicle for \$350 and had paid this amount, which left no balance, whereas the seller testified that the agreed contract price was \$700, of which the purchaser paid \$350, thus leaving a balance of \$350. The court held in favor of the seller and based its decision upon the fact that in consideration of the recent increased selling price of second hand motor vehicles the vehicle was worth \$700 when the sale contract was made. This court said:

"It is a matter of common knowledge, that from and after the time it became almost impossible to buy new automobiles and trucks for civilian use, the price of second hand motor vehicles began to increase very materially, and because of the limited supply available their value as second hand vehicles became almost as great as when they were new."

Therefore, in view of these various modern higher court decisions, it is quite apparent that the present day courts will imply any reasonable facts and render a final decision with intent to eliminate further proceedings of the suit.

Implied Rule Does Not Apply

It is important for readers to know when and under what circumstances a seller *cannot* be held liable for an implied warranty of his product. According to a late higher court decision an "implied" warranty cannot be eliminated by a seller unless the testimony shows conclusively that the seller gave an "expressed" warranty or guarantee. This means, of course, that if a seller knows the intended uses by a purchaser of his product, and he gives *no* expressed guarantee, the law "implies" that the seller guarantees that the merchandise will prove satisfactory to a reasonable purchaser who relied upon the seller to supply satisfactory merchandise. However, if the seller gives an expressed guarantee he is *not* liable on an *implied* guarantee.

See *Ralston Company v. Iiams*,

10 N. W. (2d) 452. In this case the higher court held that an implied guarantee is eliminated by an expressed guarantee. This court said:

"In order for an express warranty to exist, there must be something positive and unequivocal concerning the thing sold, which the vendee relies upon, and which is understood by the parties, as an absolute assertion concerning the thing sold, and not the mere expression of an opinion."

Reasonable Suitability

Another important point of law is that if merchandise is reasonably fit to the average reasonable buyer for intended purposes, the purchaser must pay the full contract price. Also, if the purchaser orders goods by description the purchaser is obli-

gated to pay for the merchandise although it does not perform satisfactory for intended purposes.



For instance, in *F. M. Sibley Lumber Company v. Schultz*, 14 N. W. (2d) 832, reported July, 1944, it was shown that a seller knew that certain plywood was to be used by the purchaser for making concrete forms. The purchaser refused payment. The seller filed

10 PRINCIPLES OF MODERN LAW THAT WILL HELP BUYERS KEEP OUT OF COURT

1. An arbitration clause in your contract is final and binding in the settlement of contract disputes.
2. The buyer's position is always stronger when the seller is fully informed of the intended use to be made of his product.
3. Specifications of performance or use require the seller to furnish a suitable product, but purchases by description of material and mere assumption of suitability place the burden on the buyer.
4. Controversy as to measurement or suitability should be registered promptly on the first delivery under a contract, otherwise a precedent of acceptability will be implied.
5. A written guarantee is binding upon the seller, but relieves him of liability on implied guarantees.
6. Contracts of sale constitute a fiduciary relationship in which the buyer trusts the seller and relies on his integrity, therefore fraudulent representations or concealments breach the contract.
7. However, the exaggerated claims and recommendations of salesmen must be discounted in the light of sound purchasing judgment, for legal action cannot be successfully predicated on such "puffing" statements.
8. Putting a verbal contract into writing at some later date does not change the legal intent of the contracting parties as understood in the original agreement.
9. When printed contract forms are amended by typewritten or handwritten sections, the handwritten portion has greatest legal force, the printed portion has the least.
10. It is still good policy to read contract provisions before signing, but failure to do so, in reliance upon verbal statements of the seller or his authorized agent, does not stop the buyer from setting up a claim of fraud.

suit and proved that the purchaser had ordered the plywood without relying upon any statement. The jury held the purchaser liable for payment and the higher court approved the verdict, saying:

"The jury could properly find that defendant Schultz (purchaser) took his chances with the use of plywood from a company whose circular he had read, simply assuming that the product of that company would be suitable for the purpose intended . . ."

Now, construing the legal effects of these various modern decisions, pertaining to implied guarantees, the law is settled: If a purchaser informs a seller regarding the intended uses of merchandise and relies upon the seller to supply reasonably suitable merchandise, the seller impliedly guarantees that the merchandise will prove reasonably satisfactory to the purchaser. On the other hand, if the purchaser orders or contracts to purchase specified merchandise the quality or grade which the purchaser specifies the seller is *not* liable on an implied guarantee, although he knew the uses to which the purchaser intended to put the goods.

Discount Sales Talk

Still another important point is that recently a higher court (10 N. W. (2d) 452) recognized and approved the ordinary salesman's "puffing" of his employer's product. This higher court said:

"Puffing, or praise of the goods by the seller, is no warranty, such representations falling within the maxim simplex commendatio non obligat."



Therefore, readers should be permanently impressed with the effect of modern higher court decisions that a sale contract *cannot* be rescinded or cancelled on the contention that a seller, or his salesman, "highly" praised his product. In other words, the courts recognize the fact that any and all sellers may "highly" approve and recommend their own product. Since "puffing" is not recognized as an expressed guarantee an implied guarantee is

not rendered void. The purchaser must decide for himself whether the quality of the goods satisfies him. If he makes a contract to purchase the merchandise, and subsequently discovers that his judgment is erroneous he can hold no one, except himself, responsible.

Must Promptly Complain

According to modern higher court decisions all purchasers who rely upon an "expressed" guarantee, must promptly and without "unreasonable" delay register a complaint regarding alleged defects or poor quality of the purchased merchandise.

For illustration, in the modern case of *James v. International Harvester Company*, 172 S. W. (2d) 671, the higher court said:

"A buyer, after discovering defects in a machine, must elect to take action promptly after discovering the defect, and unless prevented by the seller from doing so, tender and offer to restore the property and rescind the contract. Even this right is lost if the warranty relied on is an express warranty and the specified condition upon which the warranty is made available to the purchaser are not complied with."

The legal effect of this decision means that if a seller gives an expressed guarantee regarding his product or merchandise the purchaser must *promptly* report to the seller any and all complaints. Failure to do so may result in the purchaser *not* receiving a favorable verdict in a later suit. If the merchandise is not warranted by an expressed guarantee, and the seller knows the intended uses of the merchandise by the purchaser, an implied guarantee exists. In either event the purchaser must promptly report what he believes to be a breach of the guarantee.

Which Contract Is Effective?

Considerable discussion has arisen from time to time over the legal question: Which contract is superior, a written or verbal contract? Generally a written contract is superior. In fact modern higher courts agree on the law, as follows: "When a contract is partly pen written, partly typewritten and partly printed the pen written portion is superior, the typewritten portion second superior, and the printed portion is least in legal effect. Therefore, if a contract is ambiguous or contains contradictory clauses the pen written clauses ordinarily con-

trol and define the legal rights and obligations of the parties."

Of course, all legal rules are subject to variations. For example, in *Lippincott v. McQuire, Inc.*, 32 Atl. (2d) 580, reported during the past few weeks, it was disclosed that an oral sale contract was made on November 11, 1941. A printed contract involving the same merchandise bore the same date. However, testimony showed that this printed contract was signed on March 31, 1942, and that the seller had signed it merely for the purpose of producing tangible evidence before a rationing board to enable the purchaser to obtain certain concessions.

In view of these facts the lower court held the contracting parties bound by the terms of the verbal contract. The higher court approved this verdict, and said:

"It is fairly clear that the lower court came to its judgment upon a finding that the paper writing was intended only for the purpose which it served to accomplish, namely, the obtaining from the rationing board of an order and that it was not intended to, and did not, affect the right of the purchaser."

So, therefore, the established rule of law relating to both verbal or written contracts always is: The courts interpret any and all written clauses and provisions of a sale contract in consideration of the meaning of the contracting parties *when the contract was made*. And the same rule is applicable to verbal contracts. In other words, the originally intended obligations of contracting parties cannot be varied by either contracting party without complete agreement and consent of the other party. Therefore, the fact that a new contract or agreement is made is not important if this secondary agreement was not *intended* by both contracting parties to vary or substitute the original contract.

Fraud Invalidates Contract

Generally the courts will not consider verbal statements when interpreting written contracts. However, if a salesman who represents the seller makes verbal statements which involve "fraud" such verbal statements are *superior* and may invalidate provisions of the written contract. The terms "legal deceit" and "fraud" are applicable to all contracts of sale, and in fact to all classifications of contracts.

Therefore, it is important to know that acts, promises and agreements which may constitute fraud extend

Continued on page 310



X. BIDS AND AWARDS

By MARY E. O'CONNOR

THE price structure of bid sheets used in governmental purchasing may seem somewhat complicated to the uninitiated, but the forms become clear when the procedure is understood.

Before deciding on the form of proposals, it is necessary to determine how price is to be expressed in the bids, and whether totals are to be required as well as unit prices. On the latter point, a unit price will generally serve all purposes more efficiently than a combination of unit price, total, and grand total. The detail work of preparing a bid for submission is increased if totals are required. When the bids are received, it takes twice as much time and effort in the purchasing department to tabulate both unit prices and totals. Moreover, the totals must be verified, or at least the totals of several low bids. All of this extra work can be avoided. Ordinarily, the Purchase Division is interested in just one total for each contract—the amount of the award to the successful bidder.

The determination of low bids is made from the tabulation of bids. If only unit prices are tabulated, the matter of awarding contracts is simple, but if totals are included and discrepancies are found between the unit price and the sum total, there may be endless con-

troversies as to which shall govern, or whether the dealer will claim an "apparent error" and stand by whichever figure will best serve his purpose and swing the award. Through this involved procedure, the basis of award can be changed from a routine matter, capable of being completed fairly and expeditiously, to one of extended delay.

The only possible use for totals is in zone or group bidding, yet even then the competent clerk will not usually multiply quantity by unit price. He will determine total low bid by checking individual low bids and then evaluating one bid against the other, through plus or minus differences. Very rarely do the actual totals have to be figured.

PUBLIC INTEREST DEFINED

Since public interest should be the determining factor in awarding state contracts, the following quotation from Throop on *Public Office* (Book 1, Chapter VI, Sec. 60, Page 68) will serve as a guide to the purchasing officer:

"All contracts for supplies should be made with those only who will execute them most faithfully and at the least expense to the government. . . . Consideration as to the most efficient and economical mode of meeting the public wants should alone control, in this respect, the action of every department of the government. Such is the rule of public policy; and whatever tends to introduce any other elements into the transaction is against public policy.

"It is contrary to public interest to award contracts to irresponsible bidders, and great care should be exercised to assure that bids are responsible and that they are being made without collusion either of bidders or of bidders and state agents."

In those few instances it is better for the purchasing staff to figure the totals rather than to verify extensions on all bids unnecessarily. Where common sense dictates an exception to the unit bid procedure, however, and totals are necessary, they should be required in the proposal and tabulated. In such instances, purchase terms should clearly indicate whether unit price, total, or grand total, will govern in case of discrepancy, and whether error in extension shall invalidate the bid.

Forms of Proposal

The proposal can be made up in one of three forms, to provide for: (a) bidding by agency, unit price for each point of delivery and for each quantity listed; (b) bidding by zone, one unit price to apply for all deliveries within a given area and for the total quantities listed; or (c) bidding by state, one unit price for all deliveries and for total quantities for the entire state.

Under (b), since in competitive bidding price is required f.o.b. point of destination, zoning should be geographical to facilitate the calculation of transportation charges by the bidder.



In bidding by agency (a), and even under a zoning system (b), the local dealer is on an equal footing with other wholesalers or distributors, if his prices and standards are equal. But on a total low bid basis (c), he may be excluded entirely from the competition because of his inability to make state-wide deliveries. There is also the possibility that the aggregate quantities required by all state agencies may be too large to permit the small manufacturer or dealer to compete. The opposite principle also applies; award for each individual agency may break up the quantities into units too small to be attractive to the large manufacturer or direct distributor. Each particular problem, it should be re-emphasized, requires individual consideration and solution.

There are advantages and disadvantages to each of the three

methods of bidding described. The best procedure, particularly in the experimental stage of organization, is to use a proposal sheet that is a combination of all three and that permits alternative bidding. The agencies should each be listed by location and zone. The proposal sheets should provide spaces for unit price for each individual quantity and delivery, unit price by zone for total zone quantity, and unit price for total quantity, for state-wide deliveries, with the state retaining the option as to the basis of award.

This method gives every bidder an equal chance of quoting in the manner most advantageous to him, and unquestionably results in a determination of award on the most favorable dollars-and-cents basis for the state. However, considerable work in tabulating is involved. Experience teaches that as quantities increase and direct bidding by manufacturers and producers becomes prevalent, local dealers lose interest; they are not successful in such competition because the state may be buying as cheaply as they are. Once it is determined that there is no advantage in obtaining bids for each individual destination, the zoning or state-wide basis of proposals should be substituted.

Tabulation and Audit

The procedure established for formal receipt and tabulation of bids calls for clerks as tabulators. While similar procedure, assuring full publicity, is also adaptable to machine tabulation, few government purchasing offices are equipped to do the work of tabulating by machine at the time of bid opening.

The work of tabulating can be so divided that ordinarily the task can be finished within the hour, and contracts can be awarded within a few days; whereas if bids were read aloud and only one or two employees assigned to the tabulating and subsequent operations, much more time would be required in both procedures. Quick decisions are important in purchasing, and prompt award of contracts is in the interests of both the state and the bidders. The suggested system has proved itself efficient from all angles. In a purchase bureau where bids are being opened on one set of commodities today and another tomorrow, with bid openings on some groups occurring monthly and on others quarterly, semi-annually or annually, regular assignment of employees to special clerical units is

impracticable. The clerical force must and can be versatile, because, whatever the group, the mechanics of tabulating are fairly routine.



If the tabulations and bids are subject to rechecking by the auditing authorities of the state, duplication of time and effort can be avoided by having a representative of the audit bureau assigned to the crew, or crews, that are engaged on the original rechecking of the bids in the purchase bureau.

The proposed purchase terms require that all prices shall be net, and that cash discount shall be considered only in awarding identical tie bids. Anyone familiar with the detail of tabulating bids and the possible quantity of prices on each bid sheet, will appreciate the time that would be lost in calculating and re-tabulating bid prices, if trade and cash discounts must be deducted.

The routine of bid opening should be so planned that, if convenient, bids on kindred commodities can be opened at the one session, to obviate duplication and expense. To illustrate: bids on trucks, tractors, road rollers, etc., should be opened at one time, rather than on three successive days, since the same group of bidders may be interested in all three. Different types of road surfacing materials should also be combined for one bid opening; varied groups of food supplies in which wholesale grocers are interested offer another instance where bid opening dates might advantageously be combined.

Tabulation sheets may be very simple—a plain sheet, ruled horizontally and divided into columns, can be adapted to almost any purpose. It is sometimes more convenient to use sheets similarly ruled but with the names of state agencies or points of destination listed at the left to allow for the tabulation of bids for each individual agency. Occasionally a specially prepared tabulation sheet is needed, as in the case of coal bids when mine price, cost of delivery, and much technical data has to be listed.

If totals are to be carried into the tabulation sheets, they can be

included on any of the blanks described by allowing sufficient lines and columns to each item so as to align all unit prices, all totals, and all grand totals on individual bids, for comparison.

At the bottom of all tabulation sheets there should be several blank lines for notations—stipulations of the bidders and remarks of the checkers. Notations made by tabulators or checkers which are not copied from the bids should be made with a different colored pencil to distinguish them from the comments of bidders.

Basis of Award

Statutes of the different states vary widely in their provisions governing the awarding of contracts. Some require that award shall be made on open competitive bidding; others specify the number of bids that must be received before award is made, and still others require that award shall be made either to the lowest bidder, to the lowest and best bidder, to the lowest bidder meeting specifications, or to the lowest responsible bidder meeting specifications.



Under the plan here proposed, contracts should be awarded to the lowest responsible bidder, taking into consideration the quality of the articles or contractual services to be supplied, their conformance with specifications, the purposes for which they are required, the competency of the source of supply, and the terms of delivery. Naturally, a responsible bidder is one who meets the qualifications set up by the purchasing officer—in this, case, the qualifications detailed in the Bidders' and Contractors' Manual described in the previous chapter.

The purchasing officer should have the power to reject any or all bids, with proper records established to explain the reasons for such action. Contract award should be predicated on the assumption that proper competition has been invited and that the price quoted is reasonable

and fair. Competitive bidding contemplates advertising of the state's requirements and making a diligent effort to obtain bids within the provisions of the statute. If this effort is not productive of results, or if only one bid is received, the purchasing officer is held to have complied with the statute; a specific number of bids should not be required.

Statutes requiring two or three or more bids are likely to defeat their objective of purchasing efficiency, for there are times when not more than one bid can be obtained and when the buyer may even have difficulty in inducing that one. The intent of the law is to canvass the field of competition, but not to penalize the state by withholding needed equipment or commodities if only one bid can be found, or if purchase has to be made on that bidder's terms and conditions. However, in case no competition is developed, it is advisable to circularize the trade and ascertain the reason, since some restrictive items in the specifications or purchase terms may account for the lack of bids, and such a condition ought to be corrected. Open market purchase without bids should be made only as a last resort.

The base to be used in awarding contracts must be clearly indicated in the proposal, and supplementary information should not be introduced after the bidding. For this reason, whenever a combination of units is specified, the ratio in which they will be considered for purposes of contract award should be clearly indicated. For example: if road surfacing materials are being purchased for car-lot and less than car-lot delivery, with no definite quantities specified for each method of delivery, the purchase terms should provide a formula for determining the combined award. The formula should be based on the best estimate possible, and might be worded: "For purposes of award, less than car-lot quantities will be computed as 20% of the total quantity listed."

Tie Bids

Tie bids by two or more prospective suppliers may be the result of deliberate price-fixing, or may accidentally result from coincidence rather than premeditation.

Those who conspire to the disadvantage of the state and indulge in deliberate price-fixing deserve no consideration in the award of tie bids. Sometimes prospective bidders

"sound out" the purchasing officer in advance of the bidding, in order to anticipate what action may be expected if tie bids are submitted. Uniform bidding is most likely to occur when prospective bidders can get terms inserted in the specifications and proposals which have the effect of limiting the bidding to a small number of sources. Through this procedure, virtual certainty is established that the awards will be rotated, or that the business will be divided eventually among a small group. The purchasing officer may be entirely innocent in the matter, but he is gullible if he accepts the proffered explanations of such conspirators in good faith.



There will seldom be an identical or absolute tie bid under the wording proposed in this discussion. Even if bid prices are uniform, the quality, conformance, delivery, and other conditions of competitive bids and commodities will seldom be identical. Even if two or more firms submit tie bids on the one make and kind of commodity, they are not likely to have identical responsibility, establishments, and facilities for service. In other words, there will usually be some basis for determining the lowest responsible bidder.

The purchasing officer should not be required to follow a stereotyped procedure in making awards, and should always have the right to award contracts in the best interests of the state. In case of uniform bids where there is evidence of collusion and price-fixing, and where fair competition is not available after proper advertisement, there should be authority to reject the bids and readvertise, or to make the purchase without further competition at the best price obtainable under the specifications. If purchase is made in the open market, however, the purchase price should not be in excess of the lowest price quoted at the public bid opening. A record should be established with full explanation in all such instances, and the officer should certify that the action taken by him is in the best interests of the state.

In case of accidental tie bids, the purchasing officer should have the same privilege of readvertising, but he should attempt to find a basis for determination of award which is fair to the bidder and compatible with public interests.

Cash Discounts

Cash discounts are vitally important. They should always be taken in the payment of accounts, but should not necessarily be the sole determinant in the awarding of contracts. Where two competitive products are quoted at exactly the same price, there is usually some difference in the bids or products which should be of far more importance in determining the award than the small amount of cash discount involved.

The state is not necessarily saving money if it accepts a bidder's offer of cash discount. A saving results only if advantage is taken of the discount. The discount terms are usually conditioned on payment of accounts within ten or, at most, thirty days. Perhaps the state system of accounting and payment makes this compliance impossible. Moreover, in competitive bidding, where net prices determine the award, cash discounts are generally very small, ranging from 2% for payment in ten days down to a quarter of that amount.

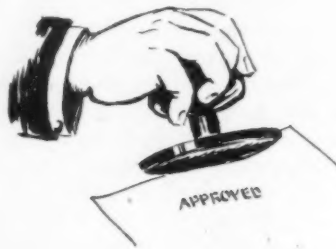
Discounts are offered by the dealer for two reasons: to insure promptness or priority in the payment of accounts, and as an advantage in the event of tie bids. If bidders understand that cash discounts will be considered only in awarding identical tie bids, and that net prices are the real basis of award, the pressure of competition will induce them to quote the lowest possible net prices. In relatively few instances are bid figures so nearly alike that a retabulation less cash discount would change the award. Even then, the saving may be negligible. On an entire monthly contract involving approximately one million pounds of meats, the difference between low bid as awarded and low bid considering cash discounts was found to be less than three dollars. In this case, the work of refiguring and retabulating all bid prices on which cash discounts applied might have cost the state more than a hundred dollars in paper work.

The terms of cash discount can and should be standardized to conform to trade custom. The purchasing officer who demands a cash dis-

count allowance for payment within twenty days will be offered no discount whatever in an industry stabilized on a ten-day basis. In these days of factoring, bank and government credits, and stabilization of business terms by industry, the creditor and not the buyer dictates the terms of trade transactions in the payment of bills.

Approvals Required

If a statutory requirement exists for audit and approval of award by some agency other than the purchase division, this approval should be obtained before the formal award of the contract. If there is no such provision for review of prospective awards, the purchasing officer should seek to have one set up.



Audit and review of his official acts before they become irrevocable should be welcomed by the purchasing officer as an opportunity to share some of his responsibility. However, auditing of his records and accounts should definitely not infringe upon his jurisdiction in matters of contract and purchase, since his responsibility here is directly to the Governor.

Auditing officials should cooperate in establishing reasonable rules of audit affecting purchase, and should not interfere with the efficiency of centralized purchasing through undue attention to technicalities. Business men are particularly resentful of what they consider unbusinesslike procedure. To illustrate: Cotton duck is manufactured in rolls of from 95 to 110 yards. As a concession to pre-audit requirements, orders may carry a notation, "100 yards, no overage." The contractor cannot ship less than 100 yards for fear it would not serve the purpose; a 100-yard roll is not available. Yet if 103 yards are shipped, the 3-yard overage may be cut off and returned. Two or three instances of this kind would discourage the shipper and result in the state eventually finding itself in the jobbing classification for cut-length merchandise, at an excess cost for all of its purchases of such

material. While this example is trivial in itself, all such instances are not so petty, and the results may well be serious. This is only one of the ways in which interdepartmental red tape can nullify the promotional efforts of the purchasing officer.

The law should include a mandatory provision for making public the proposed list of contracts before award is actually made. Such public notice can be given by posting prospective awards for a two-day period, or by mailing a tentative list of awards—as information only, and subject to confirmation. This service is greatly appreciated by bidders, particularly those who protect their bids through options which must be exercised within a definite time. Sometimes red tape ties up the award of contracts for an unreasonably long period. One bidder may fail to furnish a satisfactory performance bond for several days and, because of administrative procedure, his failure may delay award on the entire group of commodities. Because of him, another bidder may lose his options and eventually have to accept a contract at a loss. An experience of this sort is liable to discourage the responsible bidder. It is expedient, therefore, to publish the tentative list as soon as the proposed awards are available.

This advance information service enhances good will. Fair play on the part of the purchasing officer requires that he give a hearing to every dealer who has a real or fancied grievance. A bidder has a right to know that his product is being rejected, and the reason for this action, before it is too late to present his case if he chooses to do so. He is virtually refused this right when the proposed award is kept secret until a contract has been made.



Moreover, in the case of an error, the purchasing officer may find it hard to convince the losing bidder that a competitor was not willingly favored, and that the information was not deliberately withheld to keep him from registering a protest.

Continued on page 318

A name worth remembering!



FAIRBANKS-MORSE



After the war, the name Fairbanks-Morse will continue to mark performance-proved products only, as it has for 114 years.

No race to get civilian products onto the market early will tempt us to break this pledge.

Fairbanks-Morse Scales are precision-built instruments which provide mechanically perfect weight recording. Of sturdy scientific construction without springs or delicate parts, the countless types, styles, and modifications serve American business and industry by keeping books, records, and inventories, saving time, preventing errors, and speeding production.

BUY MORE WAR BONDS

DIESEL LOCOMOTIVES • DIESEL ENGINES • GENERATORS • MOTORS • SCALES • PUMPS • STOKERS • RAILROAD AND FARM EQUIPMENT

FAIRBANKS, MORSE & CO., CHICAGO 5, ILLINOIS

New PRODUCTS • IDEAS

Purchasing Agents and their Assistants are invited to Check the Coupons on the "Know-How" Pages, Nos. 10, 12, 14 and 16, for late catalogs and bulletins on New Products, Materials, Finishes, Equipment, etc.



HYSTER 20 LIFT TRUCK



SMALL, compact, gaspowered lift truck, equipped with pneumatic tires, styled the Hyster 20, is announced by the Hyster Co., Peoria, states it can go anywhere, and carry

a load up to 2000 pounds. Girls operate it easily. Traveling speed 12 miles per hour; truck will turn in its own length.

TRANSFORMERS WITHSTAND COMPLETE SUBMERSION

LINE of distribution transformers designed to withstand complete submersion in water, are announced by the Allis-Chalmers Mfg. Co., Milwaukee, Wis. Built for use in underground vaults and similar locations the subway distribution transformers operate under these conditions without damage to themselves or interruption to service. They are available in standard sizes—10 to 200 kva—and standard voltages. Complete descriptions of the units are contained in Bulletin B6333.

HANDY ANGLE BRACKET



HANDY angle bracket that will convert any drill press into all purpose machine for angle drilling, polishing, buffing, sanding, rotary filing, wire brushing, tapping, reaming, burring, grinding,

honoring and other uses is announced by Nobur Mfg. Co., 910 No. Orange Drive, Los Angeles, Calif. Spindle can be adjusted to any height, placed horizontally or vertically, at any angle. It is available for all popular models of drill presses whose construction embodies a round tubular column.

SMALL SIZE PLATING UNIT

shop conditions. Portable and able to operate on 110 volt ac, its capacity is 1/2 peck. Measures 16 1/2" x 13" x 14". Udylyte Corp., 1651 E. Grand Blvd., Detroit, Mich.

USE IT LIKE A PENCIL



BURGESS Vibro-Tool, product of Burgess Handicraft Supplies, 180 No. Wabash Ave., Chicago, Ill., marks, engraves, files, chisels, hammers (even on the hardest metals, glass and thin plastics), cuts rubber, cloth, thin wood and cardboard. The tool weighs slightly over a pound, and makes 120 reciprocal strokes per second, operating on 110 volt AC current. Converter is available which more than doubles power, and when desired will reduce strokes to 60 per second. Special etcher for metals is also available. Company also announces special diamond point.

PLASTIC TAPE VERSATILE INSULATOR

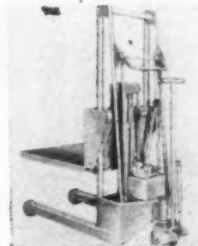
tape for insulating wires, splicing cables, protecting wiring and equipment exposed to caustic or corrosive substances. Flexible and elastic, and manufactured from Vinylite resin, it is said to be heat-sealing, flame resistant, and high in dielectric and mechanical strength.

COMPLETE, small size plating unit is said to be capable of doing efficient processing job under regular

FIBRON, released by Irvington Varnish & Insulator Co., Irvington 11, N. J., is a many-purpose plastic

LIFT-TIERING TRUCK

COMBINATION of lift truck and tiering machine in a perfect unification of the two basic principles—that of a rapid, easily manipulated lift truck and that of a safe, speedy lifting or tiering equipment,



in the form of a hydraulic High-Lift truck is announced by Lyon-Raymond Corp., 1621 Madison St., Greene, N. Y. It is made of special tubular and formed steel construction and weighs but 495 pounds. Standard stock model has capacity of 1,000 lbs., with platform 24" wide x 30" long, with a raising range of 42" - 6" lowered to 48" elevated.

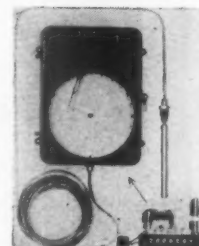
ANTI-FOG LIQUID COMPOUND

glass or plastic surface. It is said to be applied easily, last a long time, non-inflammable, non-toxic, and non-acid. For use on windshields, goggles, eyeshields, optical airplane instruments. Merix Photo Co., Dept. 71, Wrigley Bldg., Chicago 11, Ill.

ANTI-FOG liquid compound, Merix is said to prevent forming of mist, fog, or steam on any type of

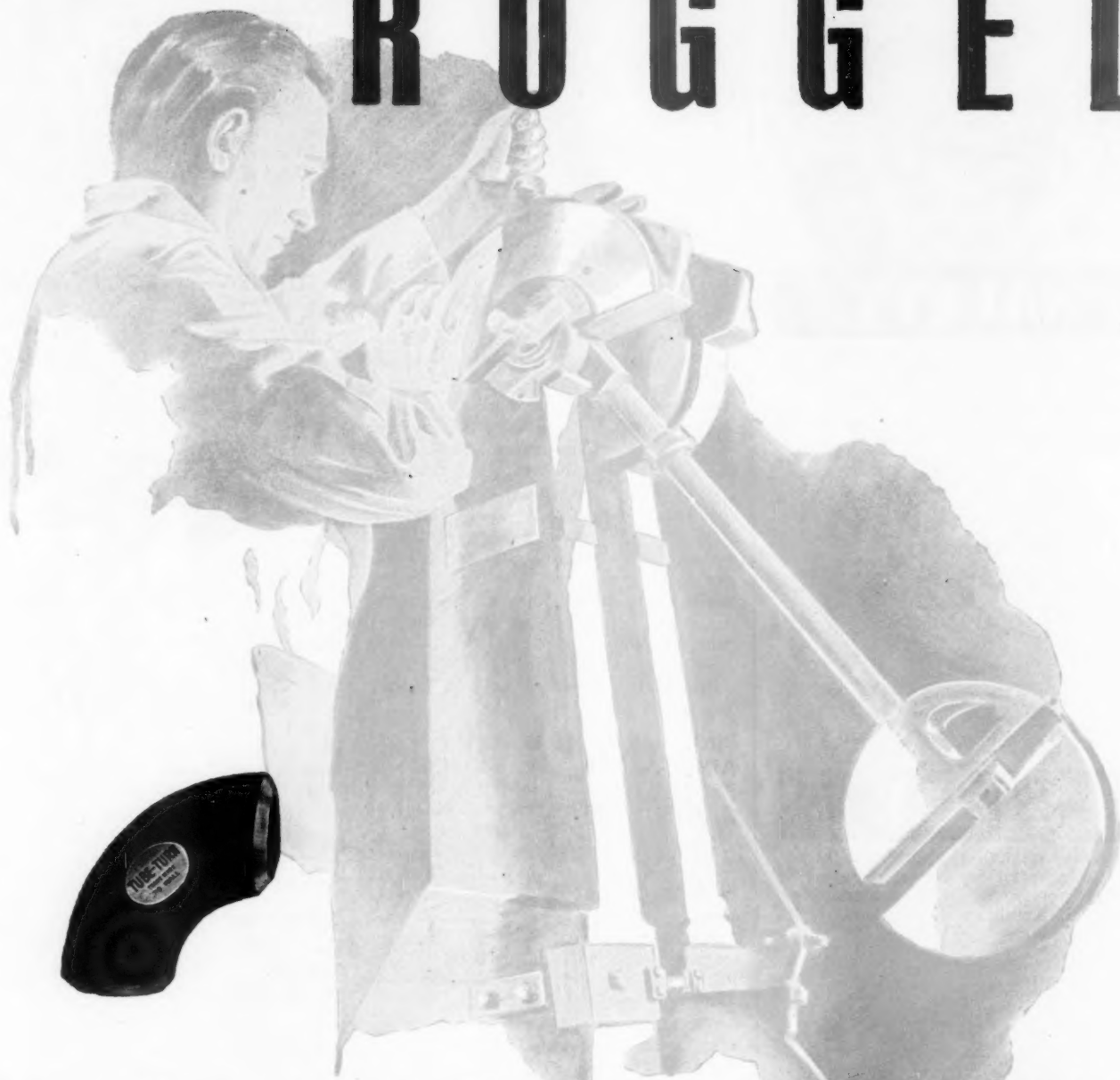
ELECTRONIC CONTROLS

NEW electronic-type controller, known as Free-Vane Electronic Controller is announced by The Bristol Co., Waterbury, Conn. Recording and indicating models are offered for automatic control of temperature, pressure, liquid level, and humidity. Following types of control operation are available—low-open, high-open, low-high, low-open-high, and low-normal-high. Bulletin B220 describes controllers in detail.



(Continued on page 120)

RUGGED



The ability of Tube-Turn welding fittings to withstand severe shocks, such as "water hammer" or impact at sub-zero temperatures, is determined *before* they are made. The most modern and accurate machines are used to make izod, tension impact and Charpy tests on materials from which Tube-Turn fittings shall be forged. All tests taken verify that ruggedness — just downright *toughness* — is *built into* every Tube-Turn fitting by a combination of superior metals, proved designs and exclusive forging processes. Be sure, when designing or repairing piping systems,

to use fittings from the Tube-Turns Catalog, and to insist on these *original* welding fittings in all specifications.

Selected Tube Turns Distributors in every principal city are ready to serve you from complete stocks.

TUBE TURNS (Inc.) Louisville, Kentucky. Branch Offices: New York, Chicago, Philadelphia, Pittsburgh, Cleveland, Dayton, Washington, D. C., Houston, San Francisco, Seattle, Los Angeles.

SEND FOR THIS CATALOG

Latest engineering data, exclusive charts, helpful diagrams and tables . . . all in one easy-to-use 240 page volume! Write (on letterhead) for Tube Turns Catalog Number III.





SAFETY

You will get the maximum in worker eye protection with Willson Safety Spectacles. Reasons . . . heat treated, **SUPER-TOUGH** lenses; every lens individually tested; new reinforced frames. With or without sideshields.



STYLE

Handsome modern appearance will appeal to workers. They are regular glasses that protect the eyes without attracting attention. Available in flat lens, 1.25 curve, or 6 curve.



COMFORT

Workers get custom-fit comfort with nine variations of lens and bridge size. Safety becomes second nature because these spectacles fit, feel good and workers keep them on.



Get in touch with your Willson Safety Service Distributor for full information. Or, write to Dept. P-2.

GOGGLES • RESPIRATORS • GAS MASKS • HELMETS

WILSON
DOUBLE
PRODUCTS INCORPORATED
READING, PA., U. S. A. Established 1870

(Continued from page 118) NEW FLUORESCENT STARTER



IMPROVED design to assure faster starting with adequate cathode preheating, both essential to increased fluorescent lamp life, is featured in gas-actuated starter called the Glostat FS-5, for 4-, 6-, and 8-watt fluorescent lamps, announced by Sylvania Electric Products, Inc., Salem, Mass. Starter contacts are enclosed in low-pressure argon gas atmosphere. When line-switch is closed, the gas glows and heats the bimetal element which momentarily closes the circuit to preheat the lamp cathode. Closing of the starter contacts eliminates the gas glow in the starter. Other Glostat models include the FS-2 for 15- and 20-watt, and the FS-4 for 30- and 40-watt lamps.

FINE ADJUSTMENT HEIGHT GAGES

HEIGHT gage with finely adjusted indicator bracket which is brought into positive position without tapping, is announced by Federal Products Corp., 1144 Eddy St., Providence, R. I. Name of gage is Federal Testmaster, and complete unit includes indicator, fine adjustment bracket, and 18" stand. Bracket can be set anywhere on the upright, and the indicator can be set at any angle—down in a hole, side-wise, or close up to the bracket.

FOR FLAME DESCALING



FLAME priming and descaling nozzle for attachment to welding torch butt, is being marketed by Victor Equipment Co., 844 Folsom St., San Francisco, Calif. Unit is said to have well-designed mixer and gas proportioner which virtually assures freedom from back-fire or flash-back. Air radiator aluminum cooling section is incorporated at the nozzle head. Unit is fitted with replaceable Meehanite skid shoes. Nozzle is made in 4" and 6" ribbon flame widths. Circular multi-flame nozzles available for use on inaccessible areas or rivet heads.

DEVICE MARKS ROUND BARS

UNIVERSAL marking device for stamping numbers and letters on round shafts has been announced by New Method Steel Stamps, Inc., 147 Jos. Campau, Detroit 7, Mich. Consists of single vee block which holds actual stamping device and automatically centers stamps on OD of bar. Made in various sizes to accommodate wide range of diameters in bar stock and cylindrical parts.

THREE-WAY FOOT VALVE

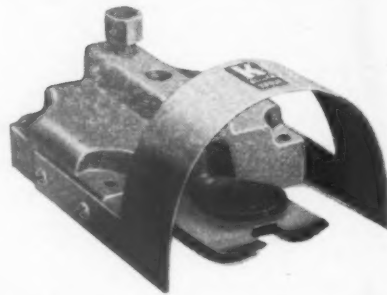


ILLUSTRATION shows compressed air foot valve for use with air tools, air cylinders, air chucks, flash welders, forging machines, die casting machines and other air operated equipment, announced by Keller Tool Co., Grand Haven, Mich. It is furnished in locking and non-locking types. Unit is of rugged construction, having heavy cast iron body, neoprene valve seat, heat treated and precision ground valve operating stem, heavy gauge steel kick guard, brass screen air strainer. Net weight 12½ pounds.

ANNOUNCE CARBIDE TIPPED REAMERS

LINE of Carbide tipped reamers is announced by the Chicago - Latrobe Twist Drill Works, Chicago, Ill. Tools are made with heat treated high speed steel bodies to withstand bushing wear and to prevent abrasion and scoring of the work, as well as to provide a tough rigid support for the tip. Spiral fluted chucking reamers are also announced. Printed matter available giving specifications, etc.

PLASTIC KEY TAGS

PLASTIC key tags, available in any two-color combination, are announced by the Plastic Division, Hollywood Athletic Co., 211 East 7th St., Los Angeles, Calif. Standard model is oval as illustrated, 1¼" x 2¾". Variations may be arranged for. Tags are printed two sides, and serially numbered as desired, and can carry characteristic signature or identifying trademark, etc.



(Continued on page 122)

*They said it
couldn't
be done*

PRIOR to the present emergency it was considered an impossibility to produce narrow strip, to exacting specifications on any of America's wide strip mills;—but Youngstown's skilled workmen, chemists and metallurgists proved otherwise.

Machine gun belts of webbed fabric cluttered up precious space inside planes and tanks, and were apt to jam gun mechanisms at critical moments. So American engineers designed a simple little clip of high carbon steel. Each clip interlocks over two cartridges, and links them into a continuous flexible belt, so unvarying in dimensions that it flows through a 50 caliber gun like "greased lightning",—as high as 800 shots per minute.

For these links, Youngstown is supplying steel strip—has already furnished enough to make many, many millions of cartridge belt clips. Every coil of this strip must meet rigid specifications—.001 inch variation in gauge in each coil and not over .002 for all strip furnished—exactly the right tensile strength, elasticity and forming properties.

By producing flat-rolled steel to these exacting specifications for Victory, Youngstown has proven its ability to fulfill your peace time requirements in the post-war period.



YOUNGSTOWN
THE YOUNGSTOWN SHEET AND TUBE COMPANY

YOUNGSTOWN, OHIO

Manufacturers of

CARBON · ALLOY · AND · YOLO · STEELS

Pipe and Tubular Products · Sheets · Plates · Conduit ·
Bars · Electrolytic Tin Plate · Coke Tin Plate · Rods · Wire ·
Nails · Tie Plates and Spikes · Alloy and Yolo Steels.



PORTER HAND POWER CUTTERS

These tools go to the job and are used on the job independent of any power source — except a worker's two hands. This power is so multiplied that an average worker can exert sufficient pressure to "lift an elephant —"

This power delivered at the working head finds many applications in metal cutting and fabricating — emergency, repairs, on construction, shop or production.

The illustration above shows a Porter Bolt Clipper head cutting a $\frac{5}{8}$ " annealed bolt in the thread. In addition to standard tools for cutting wire, cable, chain, flat bars, splitting nuts, etc. there are special tools for Heading, Pressing, Crimping, Punching, Caulking.



FREE Write for Free copy of Tool Maintenance Book boiled down essence of practical experience in use and care of clippers, saws, chisels and other hand tools. A post card request will bring it postpaid. Also write for catalog of Porter line of Cutters.

H. K. PORTER, INC., 410 Ashland St., Everett 49, Mass.

PORTER

HKP

CUTTERS

(Continued from page 120)
NEW TYPE DRYER



DRYER named the Multi-Louvre Dryer, is announced by the Dryer Division of the Link-Belt Co., 300 W. Pershing Road, Chicago, for the low cost drying (or cooling) of bulk materials which do not require long retention periods. It is a compact, fully enclosed unit, containing moving louvres supported on power-operated endless chains. Unit is said to make for efficient drying and assure a uniformly dry material. Fine materials can be carried on the louvres without clogging. The dryer is described in Folder No. 2009.

DIE FOR COLORING VINYLITE SHEET STOCK

PLASTIC dye named "Krieger-O-Dip-V" has been developed by the Krieger Color & Chemical Co., 6531 Santa Monica Blvd., Hollywood, Calif., for the coloring of vinylite plastic sheet stock by the dipping method. It does not have to be mixed with other ingredients. Dying time is 5 to 10 seconds for pastel shades, 20 to 30 seconds for medium shades, 30 to 60 seconds for heavy shades. It is now available in four colors—yellow, orange, Green D, and Rose, which are intermixable.

ADJUSTABLE TOOL HOLDER

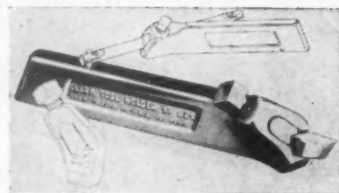


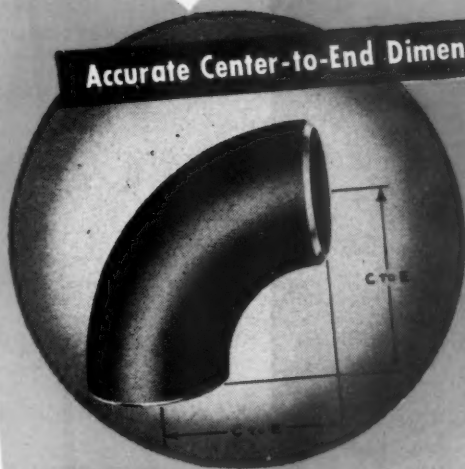
ILLUSTRATION shows adjustable holder with a vise grip for use on lathes, shapers, and planers, announced by Robert H. Clark Co., Beverly Hills, Calif. Four or more sizes of tool bits can be used in the same holder. Models available are the 15° sloping cutter channel type and the horizontal or parallel channel type in both right and left hand effect. Each type is available in several shank sizes. Bit can be held vertically and horizontally; vice-grip also firmly holds very short tool bits.

(Continued on page 126)

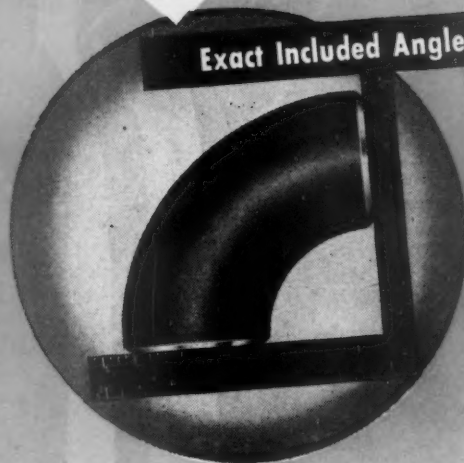
IMPORTANT FEATURES OF MIDWEST WELDING ELBOWS

That Save Time and Money

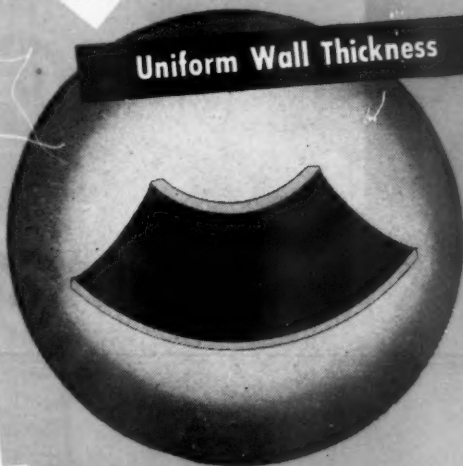
Accurate Center-to-End Dimensions



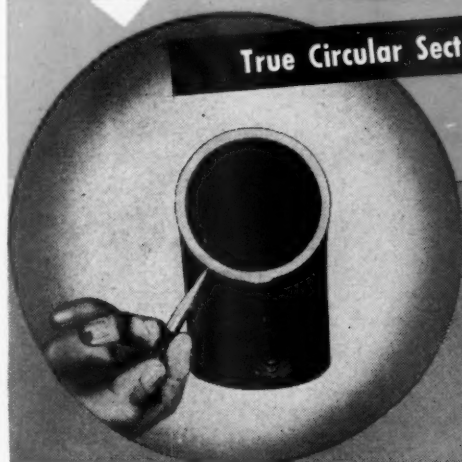
Exact Included Angle



Uniform Wall Thickness



True Circular Section



Midwest Welding Elbows possess the features shown here to an unusual degree because of: (1) a unique manufacturing process whereby the final "size-forging" is in compression in totally enclosing dies that exactly control the metal distribution and (2) special machines for simultaneously machine-beveling both ends and holding the included angle within extremely close limits.

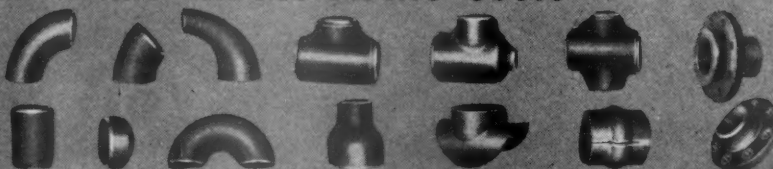
The importance of these features cannot be overemphasized . . . they simplify piping layout . . . they save time in lining up and welding . . . they permit better welds . . . they mean a better piping job.

MIDWEST PIPING & SUPPLY CO., INC.

Main Office: 1450 South Second St., St. Louis 4, Mo.

Sales Offices: New York 7—(Eastern Division) 30 Church Street
Chicago 3—645 Marquette Bldg. • Los Angeles 33—520 Anderson Street
Houston 2—229 Shell Bldg. • Tulsa 3—533 Mayo Bldg.
South Boston 27—426 First St. • Atlanta 3—Red Rock Bldg.
Distributors in Many Cities

**MIDWEST WELDING FITTINGS IMPROVE DESIGN
AND REDUCE PIPING COSTS**





THE MORE

THE MORE



B-R-I-G-H-T
FROM END TO END

SPARKLE IN THE POWDER...



The greater the care in selection and compounding of phosphor powders for fluorescent lamps, the greater the brightness from the lamp, and the more See-ability the lamp produces in service.

Westinghouse research engineers found, for example, that foreign substances in a batch—*just one part in a million*—make an appreciable difference in light output.

To eliminate these impurities, Westinghouse research has devised new and effective purification processes. A carefully planned and meticulously controlled routine of acid washing, high-temperature firing, grinding, mixing and blending, assures maximum purity and brightness performance in the finished phosphor.

For better See-ability, take advantage of this Westinghouse research and product improvement—ask your nearest Westinghouse dealer for Westinghouse fluorescent lamps—long lasting, bright from end to end. Westinghouse Electric & Manufacturing Company, Bloomfield, New Jersey.

SEE-ABILITY FROM THE LAMP



Westinghouse

PLANTS IN 25 CITIES . . . OFFICES EVERYWHERE

MAZDA LAMPS FOR SEE-ABILITY

WESTINGHOUSE PRESENTS

JOHN CHARLES THOMAS • SUNDAY 2:30 EWT., N.B.C. •
"TOP OF THE EVENING" • MON. WED. FRI. 10:15 EWT., BLUE NET.



ONE PERFECT PART

First glance might take this plain-looking bushing to be the product of drawing operations. . . . Actually, it's a precision-machined Corbin aircraft part of aluminum bronze — hand-detailed to as near perfection as modern equipment and superior skill can bring it.

The flange and walls are ground to precision tolerances, and all sharp corners are carefully removed. Even the small end has been faced accurately. . . . Obviously, not a simple automatic job.

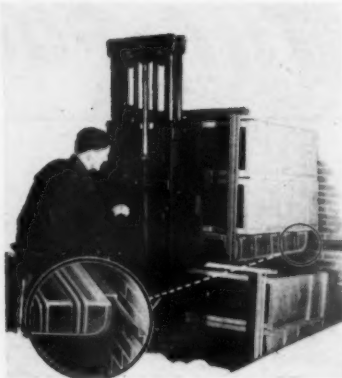
Corbin, operating thousands of latest type machines, can meet your most exacting specifications, with precision "extras" far beyond ordinary machine-shop practice.

Some of our facilities may be available now. Send us your blueprints and specifications for prompt, helpful study of your precision requirements.

THE CORBIN SCREW CORPORATION
The American Hardware Corporation, Successor
NEW BRITAIN, CONNECTICUT

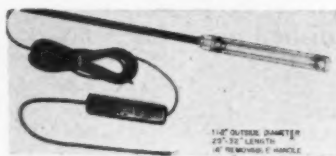


(Continued from page 122) NEW SKID PLATFORM



SKID platform with interlocking channels and a verticle end frame for handling frangible or easily marred materials, has been developed by the Union Metal Mfg. Co., Canton, Ohio. Platforms can be tiered as high as the lifting mechanism of the fork or platform lift truck will take them. Number of rows depends entirely on available storage space.

FLUORESCENT INSPECTION LIGHT



FLUORESCENT LIGHT 1½" in diameter designed for inspection of drums and barrels when bungholes afford the only means of access is being marketed by Day-Ray Products Inc., So., Pasadena, Calif. The light is available in 6 and 8 watt sizes for operation on 60 cycles, 120 volt circuits. Lighting element is regular mazda fluorescent bulb, enclosed in plastic tube for insulation. Overall length is from 29" to 32", including 18" removable handle. All parts are replaceable. Catalog on request.

SHARPENS TWIST DRILL



PICTURED is the Super, a simple jig mounted next to a grinding wheel which the manufacturer states enables even a girl to grind a drill to a factory finish in 25 seconds. It handles drills from 3/32" to 1-1/16" in diameter and up to 11" in length. Adjustable to either 59, 69 or 88 degree angles. A. D. McBurney, 939 West 6th St., Los Angeles, Calif.

(Continued on page 128)



TWO PERFECT PARTNERS

An electric driver . . . Corbin-Phillips Screws. . . A perfect union of *power plus accuracy* for top speed in fastening.

Phillips-Recessed Heads for a sure grip and quick, true drives. . . . Corbin quality for clean-cut strength, with no burred heads or broken screws to delay production. A combination that starts right and finishes right . . . at any speed . . . every time.

For quicker, *better* assembly-fastening: specify Corbin-Phillips.

Look to CORBIN

for your requirements in Screws and Nuts . . . a full range in both



CORBIN-PHILLIPS

and



REGULAR SLOTTED

Also AIRCRAFT Screws and Nuts to Governmental specifications.

See your Distributor

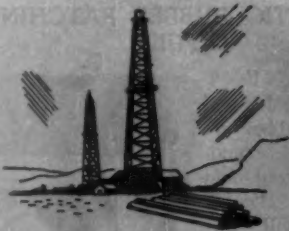
— also complete stocks at Chicago, New York and New Britain . . . and sales representatives who can "talk shop." Write for Catalog.

THE CORBIN SCREW CORPORATION
The American Hardware Corporation, Successor

NEW BRITAIN, CONNECTICUT

Warehouses:
New York • Chicago

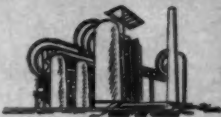




OIL COUNTRY CASING,
DRILL PIPE & TUBING



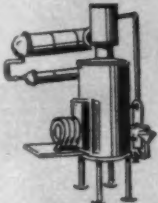
MARINE, LOCOMOTIVE &
STATIONARY BOILER TUBES



SEAMLESS REFINERY
TUBING



SEAMLESS MECHANICAL
TUBING



STAINLESS STEEL
TUBING



WELDED
TUBING



AIR CRAFT
TUBING



TUBULAR
RAILWAY
AXLES

One Source for **ALL** these TUBULAR and WIRE PRODUCTS

Pittsburgh Steel Company is essentially a manufacturer of wire and wire products and seamless and welded steel tubing originating from its own production of carbon and alloy steels. Thus *Pittsburgh*, more than any one steel company, constitutes a *single* dependable source of supply for a wide range of wire and tubular products used by *many* industries . . . as well as for specialized products used in *specific* industries.

Production of most of this *Pittsburgh* line has been either diverted to direct war purposes or restricted to essentially rated uses. It had to be so. But in days of greater availability ahead these *Pittsburgh* wire and tubular products will emerge in greater abundance, wider range and higher quality than ever before. New facilities, new skills, new technological developments, born of war's necessities, make this possible.

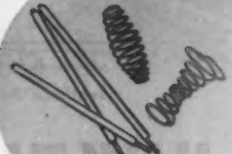
In your present and post-war planning, check the wide range of *Pittsburgh* products applicable to your needs. Complete data on any of them is yours for the asking plus the full cooperation of our sales and engineering staff if you desire it. Make *Pittsburgh* your "one-stop" source for tubular and wire product needs.

PITTSBURGH STEEL COMPANY

1671 Grant Building
PITTSBURGH 30, PA.



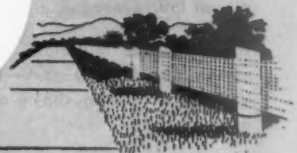
REGULAR AND
STAINLESS NAILS



SPRING WIRE,
WELDING WIRE AND
OTHER CARBON,
ALLOY &
STAINLESS WIRES



STEELTEX
CONSTRUCTION FABRICS



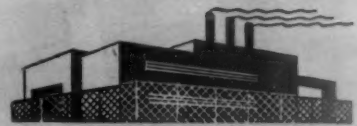
SAFETY HIGHWAY
GUARD



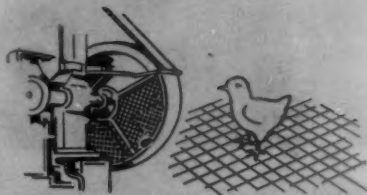
WELDED WIRE REINFORCEMENT



FARM POULTRY AND
LAWN FENCE AND BARBED WIRE

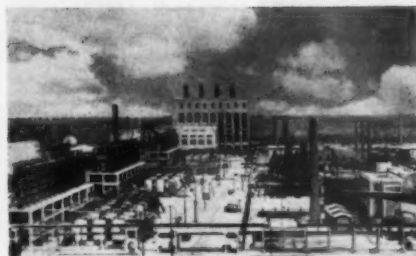


CHAIN LINK FENCE



CLOSE MESH WELDED FABRICS

In the Nation's Industries...



Synthetic Rubber

In Its Implements of War...



Pan American Clipper

LUNKENHEIMER VALVES

have established

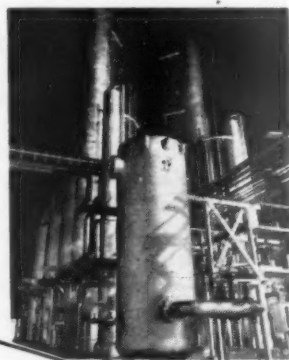
a Notable Service Record

In tanks and jeeps, bombers and pursuit planes, "ducks" and landing craft, submarines and Liberty cargo Ships . . . in the busy industries which turn out America's vast armaments . . . in giant refineries, synthetic rubber units, chemical and power plants . . . on every front LUNKENHEIMER VALVES are performing a vital indispensable service.

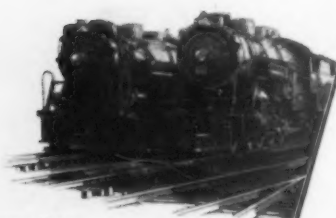
Highest grade materials, simplicity of design, rugged durability, super-accurate machining of every part—these are qualities which have made LUNKENHEIMER VALVES a leading choice of American industry for more than three quarters of a century.

In addition to superior workmanship which comes of long-accumulated experience, rigid tests at every step in the manufacturing process assure dependable performance and low-cost maintenance in these Longer-Life Valves.

Your LUNKENHEIMER Distributor is always ready to help you with problems of maintenance, repair, and operation. His complete facilities are at your service.



Penicillin



Locomotives



Ducks, Trucks, L.S.T. Craft
 (Photo U.S. Signal Corps)



High Pressure Steam and Power

(Continued from page 126)

SYNTHETIC RUBBER PATCHING LIQUID

PERMANENT repair of holes and tears in rubber articles which cannot be vulcanized and to which "cold" patches will not adhere, is said to be possible with Yu-Re-Nu, a self vulcanizing synthetic liquid rubber material made by R. S. Jones and Son, San Gabriel, Calif.

Material may be built up in successive layers to form patches 1/16" thick or more. Patches stretch with the rubber, and are said to be highly resistant to extreme heat or cold, gasoline, grease, oil, and even battery acid.



SAFETY PERIPHERAL MARKING HOLDER

NEW safety peripheral marking holder for stamping around the outer circumference of tubing, is announced by M. E. Cunningham Co., 154 E. Carson St., Pittsburgh, Pa. It is of all-welded design, features a hand grip lock and is equipped with pointed screws which holds the unit firmly in position for marking. Separate handling for each character is eliminated. Holder permits peripheral marking around the end rather than along the length of tubes.

PLASTI-GOGGLE

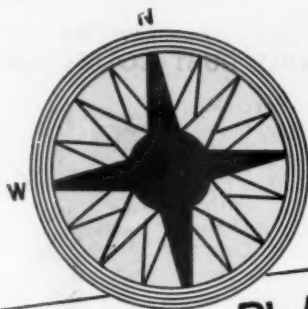
SAFETY goggle illustrated is the Amcoweld Plasti-Goggle, which is said to give undistorted and unrestricted vision coupled with maximum protection against impact hazards. It is made of one piece clear plexiglas and can be worn all day without eyestrain or fatigue. Goggles are spatter resistant, and light in weight. Fitted with 3/4" elastic band and adjusting buckle. Eastern Equipment Co., Inc., Willow Grove, Pa.



FLEXIBLE METAL HOSE COUPLING

DETACHABLE brass coupling for helical flexible metal hose in sizes from 3/4" to 1 1/2" i.d., has been developed by Packless Metal Products Corp., New Rochelle, N. Y. It is mechanically self-sealing. No brazing is employed. Unit consists of four parts—nut, back, stem and split ring. Coupling withstands pressures up to 800 pounds. Self-contained union permits pipe thread end of coupling to be screwed directly into the machine fitting, union being tightened without twisting the hose.

(Continued on page 130)



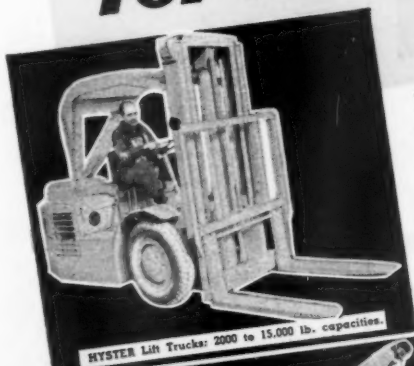
**It's time
to chart your course**

PLANT PRODUCTION SCHEDULE

A.M.	MATERIALS			TRANSPORTATION		
	RECEIVING	SHIPPING	MACHINE SHOP	ASSEMBLY	WAREHOUSE	YARD
	1 3		1	2	1	5
	2		2	3	4	6
	5	4 2	2 3		2	
		4 2	2			
P.M.			2	1 3	2	5
	1 2	4	2	3		6
	4 3	1	2			
	6	4 5	2			
		4 5				

LIFT TRUCKS 1-2-3-4 KARRY KRANE 5 STRADDLE TRUCK 6

**for Materials Handling
Operations—**



HYSTER Lift Trucks: 2000 to 15,000 lb. capacities.



HYSTER Karry Crane: 10,000 lb. capacity.



HYSTER Straddle Trucks: 12,000 & 30,000 lb. capacities.

Under the present emergency, American Industry has developed and adopted many new and useful methods for faster, more efficient production. Foremost of these is in the field of materials handling. These new methods will serve gainful purposes in the days ahead—when industry is "back on its own"—and when Materials Handling, **always a major item of Operating and Production Costs**, will come in for even more careful scrutiny.

NOW IS THE TIME TO CHART YOUR COURSE toward postwar production operations; to inventory your present facilities for adjustment to the competitive days ahead . . . **Materials Handling should head the list of reorganization planning!**

HYSTER engineers can help you organize for scientific materials handling. Find out how HYSTER equipment . . . Fork Lift Trucks, Crane Trucks and Straddle Trucks . . . will provide definite savings and faster, "on schedule" movements of ALL materials EVERYWHERE . . . Write us.

**HYSTER
Company**

2978 N. E. Clackamas
PORTLAND 8, OREGON

1878 North Adams
PEORIA 1, ILLINOIS

Pioneer manufacturers of mobile materials handling machines; fork lift trucks, cranes, straddle trucks; all gasoline powered; all pneumatic tire mounted.



For those heavy, bulky loads— Simplex Geared Jacks

No. 126, capacity 25-tons; height 27 $\frac{1}{2}$ " / lift 12 $\frac{1}{2}$ " / toe lift 3" x 3 $\frac{3}{4}$ ". No. 135 (not shown), capacity 35-tons; height 27", lift 16", no toe lift.



Speed and ease of operation make Simplex Geared Jacks industry's choice for heavy lifting. Machinery, large parts and other heavy, bulky loads are handled economically. Simplex integrally keyed pinions and gears have been in use in these jacks for 30 years without a single failure. Send for our new pocket Catalog No. 44.

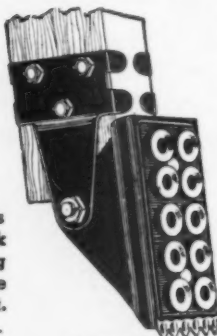
Simplex
LEVER · SCREW · HYDRAULIC
Jacks

Templeton, Kenly & Co., Chicago (44), Ill.
Better, Safer Jacks Since 1899

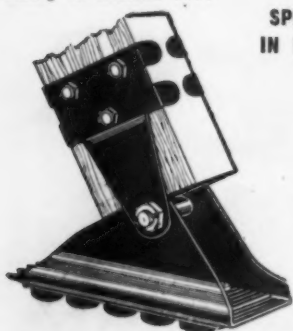
DAYTON SAFETY LADDER SHOES

FIT ANY STANDARD LADDER RAILS

Shoe or base is made of #16 gauge and the side plates are of #13 gauge steel. Suction grip threads are renewable. Lock nuts and spring washers insure proper adjustment. Easy to install.



SPIKE TOE
IN POSITION



RUBBER
TREAD
IN
POSITION

"Listed by Underwriters' Laboratories Inc."
WRITE FOR BULLETIN NO. 4 TODAY

DAYTON SAFETY LADDER CO.
2337 Gilbert Ave., Cincinnati 6, Ohio



The Outgrowth of
The First Bolt and Nut Plant
In America—and
Still Leading
In Service and
Quality

A complete line of Nuts,
Bolts, Screws and Rivets.
Almost a Century of experience
and proven worth.

Write **CLARK BROS BOLT CO.**
MILLEDGE
CLARK BROS BOLT CO.
Milledale, Conn.



(Continued from page 128)

PORTABLE DUST COLLECTOR

DUSTEX portable dust collector, built in four sizes, is announced by Dust Filter Co., 4418 No. Clark St., Chicago, Ill. Unit maintains constant static air suction of more than 4 inches at velocity of 500 LFM. Units weigh from 75 to 200 lbs.; sizes 30 to 51 inches high. Separator is said to successfully collect the most minute dust particles. Printed matter available.



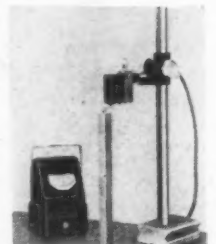
SELF FLARING PLASTIC COUPLING

SELF - flaring coupling for flexible plastic tubing is announced by Packless Metal Products Corp., 31 Winthrop Ave., New Rochelle, N. Y. No flaring tools are required. Flare is formed as the members of the coupling are screwed together in one simple operation which is said to assure uniform walled flare with no thinning toward the end to weaken the tube. The plastic tubing is not preheated. Coupling may be reused indefinitely. For tube sizes $\frac{1}{4}$ " to $\frac{3}{4}$ " O.D.

SELF - flaring coupling for flexible plastic tubing is announced by Packless Metal Products Corp., 31

PRECISION HEIGHT INDICATOR

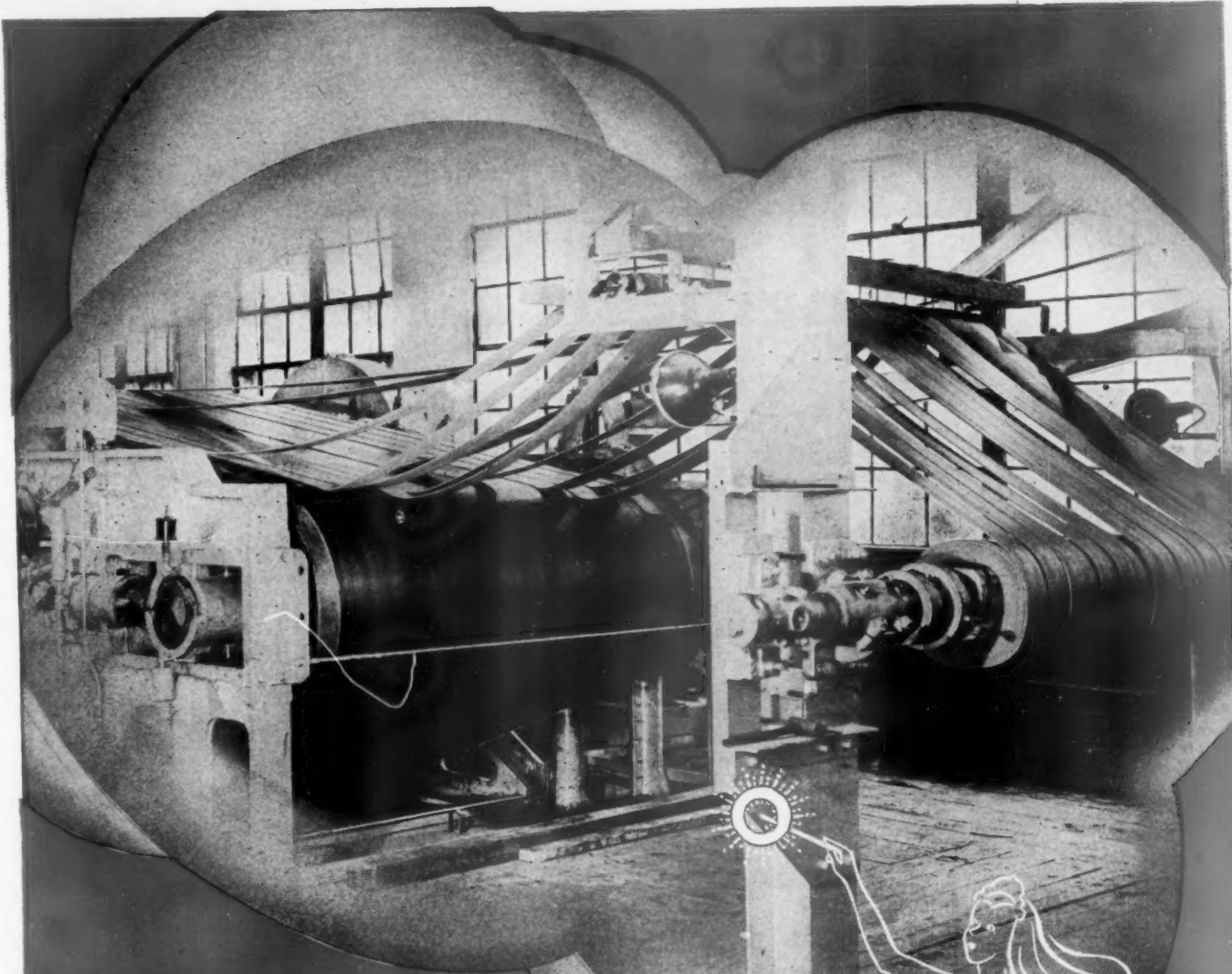
DESIGNED for use on surface plate, Precision Height Indicator with Electrigage is claimed to give quick, accurate reading. Instrument includes surface plate block, 26" column with rack, and a Sheffield Electrigage, 1000-1 amplification, electric pickup head. Micrometer is provided for $\frac{3}{32}$ " vertical adjustment of pickup head. Mounting bracket is adjustable vertically with capacity of 0" to 18".



BATTERY INCORPORATES GLASS TAPE INSULATION

INDUSTRIAL truck battery claimed to have 30% longer life is announced by Storage Battery Division of Philco Corp., Trenton, N. J. Battery incorporates a revolutionary new principle of fabricated glass tape insulation which is said to greatly lengthen the efficient service life of the power-producing positive plates. Grid frames are completely encased, materially decreasing the rate of peroxidation. New battery is known as the Philco Thirty.

(Continued on page 134)



A DREAM COMES TRUE

Development engineers had long dreamed of a continuous process for vulcanizing rubber belting, but the problem was a stupendous one.

BWH engineers found the answer by perfecting a new and original rotary type of press which makes the vulcanization continuous and automatic instead of spasmodic and arbitrary. The Rotocure Process replaces variation with uniformity.

A belt made by this process is uniform in structure, uniformly vulcanized, and uniformly stretched throughout its entire length — and it will give uniformly excellent results in service.

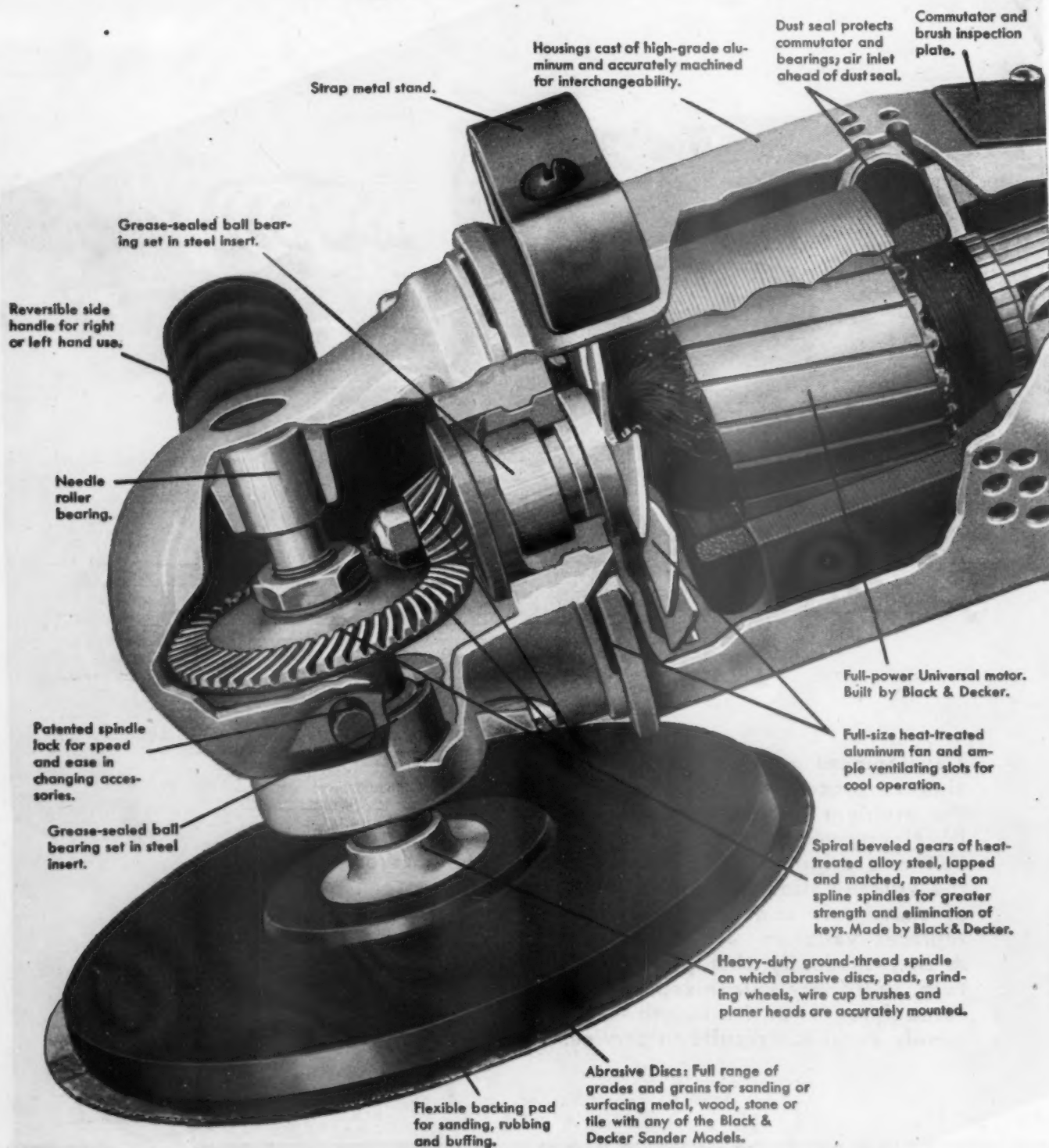
BOSTON WOVEN HOSE & RUBBER COMPANY

WORKS: CAMBRIDGE, MASS., U.S.A.

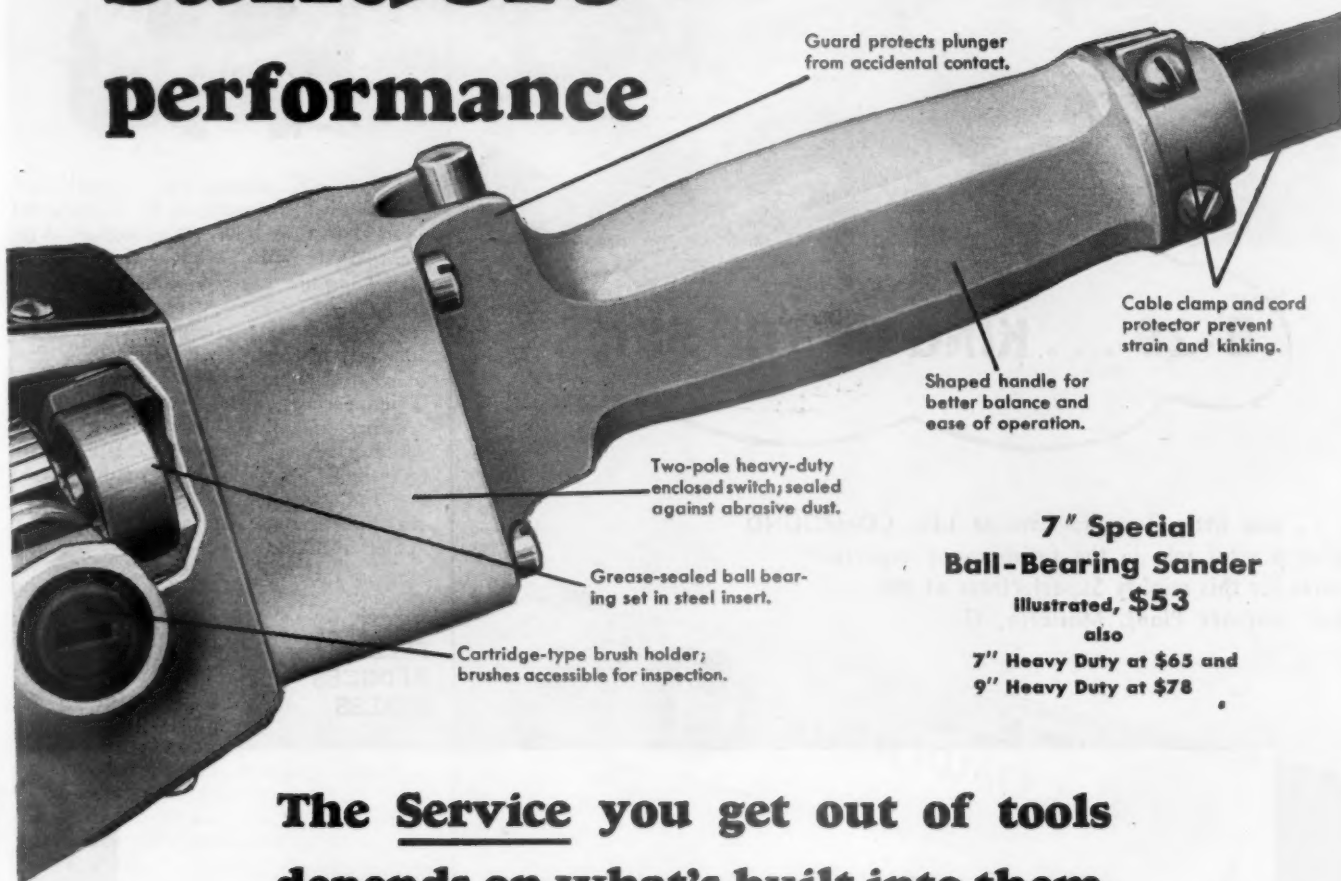
P.O. BOX 1071, BOSTON 3, MASS., U.S.A.



Check these features of **Black & Decker** Engineered for peak



Sanders— performance



**7" Special
Ball-Bearing Sander**
illustrated, \$53

also
7" Heavy Duty at \$65 and
9" Heavy Duty at \$78

The Service you get out of tools depends on what's built into them.

One of the most versatile tools in the complete Black & Decker line is the husky Black & Decker Portable Electric Sander. The same tool that does such an efficient job of sanding metal, wood, stone or tile converts quickly and easily into a tool for grinding, wire brushing, planing or buffing.

And Black & Decker Sanders can take it! They've got the power, stamina and speed to keep going on continuous, heavy-duty production or maintenance work—to turn out better work, *faster*. That's because each part in every Black & Decker Tool is specifically designed and made for the job it has to do.

For example, the spiral bevel gears in Black & Decker Sanders are cut in matched pairs. Each pair is carefully lapped together until they mesh perfectly. The result is pair after pair of flawlessly matched gears—made completely by Black & Decker—for a smooth, quiet flow of power from motor to spindle.

Next time you buy electric tools, get the extra satisfaction that's built into every product of Black & Decker—world's largest manufacturer of portable electric tools. There's a Black & Decker Distributor near you as a ready source of information and supply. The Black & Decker Mfg. Co., 664 Pennsylvania Ave., Towson 4, Maryland.



LEADING DISTRIBUTORS EVERYWHERE SELL

Black & Decker

PORTABLE ELECTRIC TOOLS



B-29 . . . KING OF THE SKIES

. . . and little 2-pound bars of LEA COMPOUND play a vital role in the finishing of important parts for this mighty Superfortress at the Bell Aircraft Plant, Marietta, Ga.



BECAUSE of its years of experience in "finishing" operations — in burring, polishing, buffing — LEA was the immediate choice of most war-contract companies faced with the necessity of producing articles more precisely finished than ever before. LEA Technical men helped to devise new and better finishing methods. LEA Production geared itself up to the job of producing much more than its peace-time tonnage of LEA COMPOUND and LEAROK, industry's most widely used compositions.

When your finishing department puts in a call for burring, polishing or buffing compositions, make them LEA . . . and ask a LEA Technician to visit your plant and demonstrate the best way to use them.



THE LEA MANUFACTURING CO.

Waterbury 86, Conn.

Burring, Buffing and Polishing . . . Manufacturers and Specialists in the Development of Production Methods and Compositions

11-LM-14

(Continued from page 130) NEW SURFACE GRINDER

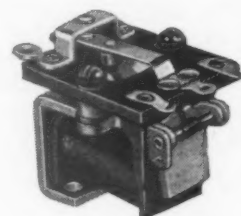


PICTURE shows new model G-1 DoAll surface developed by Continental Machines Co., 1301 Washington Ave. Co., Minneapolis, Minn. Manufacturer states machine has a dependable accuracy which enables even green operators to rely on it for constant fine work. With standard grit wheels it produces a fine finish to within 6 micro inches. New design permits the operator greater convenience and closer inspection of work while grinding. The machine is especially designed for efficient wet or dry grinding, and for automatic hydraulic feed or smooth-operating manual feed. Printed matter available.

SHOT PEENING REDUCES STRESS

TO INCREASE life of stressed parts such as gears, springs and axles, line of machines known as Wheel-peening equipment directs rain of metallic shot against part at high velocity. Each shot striking surface makes tiny dent or pit so that cumulative effect is to stretch surface layers by cold working, to put them in state of residual compression. Torsion bars are placed on rollers so that all surfaces of bar are exposed to peening action in machine. Controlled centrifugal force rather than compressed air is utilized. American Foundry Equipment Co., Mishawaka, Ind.

NEW MIDGET RELAY



LIGHT weight, midget relay for application where weight and space are at a premium, is announced by Guardian Electric Mfg. Co. Weighs 1.2 oz., and measures 1-9/32" x 1-5/32" x 29/32", single pole, single throw. Operates on D.C. only and has switch capacity of double pole, double throw with 1.5 amp. contacts. Power requirement 1.75 watts. Bulletin 295 available.

(Continued on page 138)

Don't let
"LAZY" oil
shelve your
shovels

... keep
equipment
on the "GO" with
hard-working
TALPEX

TO BE EFFICIENT, the oil used in today's Diesels, with their faster speeds and closer tolerances, must do more than just lubricate. An oil that doesn't is "lazy," causes trouble.

Shell Talpex can never be accused of being "lazy." It's a two-fisted, heavy-duty lubricant that has *all* of the properties necessary for efficient, wartime Diesel operation. That's the reason many operators who have switched to Shell Talpex find their Diesels running for longer periods of time between overhauls, and with greater operating efficiency.

Why not give your equipment *all* of the following advantages of this hard-working lubricant?

NEW SHELL TALPEX

Is Non-Corrosive to alloy bearings. Protects all lubricated engine parts against corrosion.

Has Exceptional Oxidation Stability. Holds to a minimum the formation of sludge, lacquer and other deterioration particles.

Has High Detergency. Helps keep carbon, lacquer and foreign particles from adhering to pistons and rings, valves, ports.

Has Low Carbon-Forming Tendency. Reduces ring sticking and wear. Lengthens engine life.

If the oil you now use doesn't have *all* these properties, it's lazy . . . should be changed to hard-working Shell Talpex. Ask the Shell man to show you why.



TALPEX

THE NEW, ALL-PURPOSE,
HEAVY-DUTY LUBRICANT

For trucks, busses, tractors, shovels,
stationary and marine Diesels



SAFE because it's **STAINLESS**

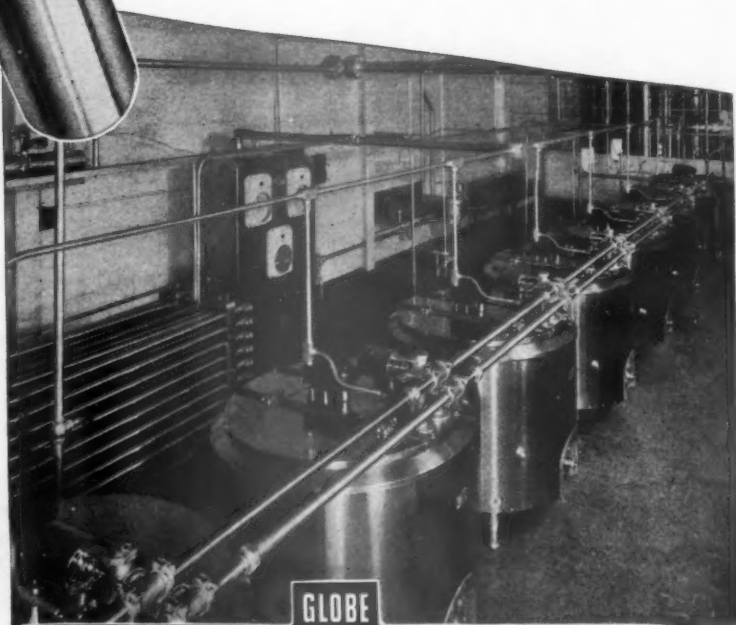
Clean, sterile conditions are absolutely essential where food, dairy and chemical products are processed. This includes the tubes through which the substance must pass or with which it comes in contact. Nothing less than satin-smooth, noncontaminating tubes will answer the purpose.

GLOBE STAINLESS Steel Tubes

Big users of Globe Stainless Steel Tubes are the chemical, food, dairy, and other process industries. In the vital arteries of processing, the extra margin of safety provided by these tubes is essential.

Whatever your tubing problems may be, let Globe help you with them. GLOBE engineering staff, excellent laboratory facilities and production capacity can provide you with the tubes exactly suited to your needs.

3006



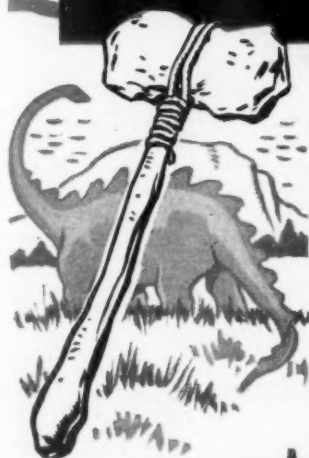
★ STAINLESS TUBES
★ BOILER TUBES
★ GLOBEIRON TUBING
★ GLOWELD TUBES



★ CONDENSER AND
HEAT EXCHANGER
TUBES
★ MECHANICAL TUBING

GLOBE STEEL TUBES CO., Milwaukee 4, Wis., U. S. A.

WHAT HAS THIS TO DO WITH BROACHING?



to the Secret of Success

SOMEWHERE in the dark of a Celebes moon, a silent shape steals closer, ever closer to the menacing bulk of a Japanese heavy cruiser. Suddenly . . . its mighty engines exploding in a thunderous roar . . . it drives home its lethal load and swerves, madly bucking, to make good its escape. Aiding in its headlong dash for safety, beyond the reach of vengeful guns, is the careful design and construction of its bow sections . . . a modern scientific development of the ancient, fundamental principle of the Wedge, which has served Man in countless usages from the first flint axe to the P. T. boat.

Reference

ALSO serving mankind in the scientific adaptations of of fundamental engineering principles, Lapointe has been ever first to combine imagineering with time-proven principles. Broaching is no longer just another method of removing metal. In the hands of those who plan for Tomorrow, broaching has become a powerful weapon in the war of production . . . and in those same hands, will provide revolutionary achievements in the days of peace, by making things quicker — cheaper . . . and better!



The first broaches, or drifts, as they were then called, were driven, one upon another, through the work part.

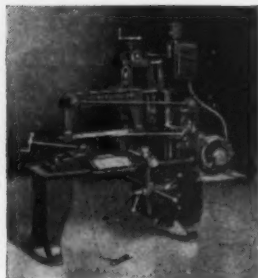
The

LAPOINTE

Machine Tool Company

HUDSON, MASSACHUSETTS, U. S. A.

THE WORLD'S OLDEST AND LARGEST MANUFACTURERS OF BROACHES AND BROACHING MACHINES



Best!
FOR LIGHT DUTY
Speed!

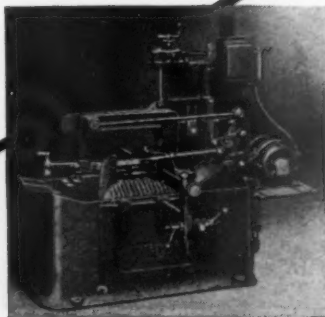
High Speed at Low Cost
No. 4B

For tool room, stock room, or maintenance shop, this 6" x 6" capacity hack saw is superior to anything in its price class. Embodies similar design principles and features of MARVEL Heavy Duty production saws. Cuts a 2" standard pipe in 30 seconds—a 5" round in 8 minutes!

MARVELSAWS

2-Speed and 4-Speed

For applications where materials of different hardnesses and alloy characteristics are to be cut, MARVEL 4B is available in 2-Speed and 4-Speed models. Built-in work tracks for holding outer end of bars are also available for all models.



Complete Range of Metal Sawing Machines

Being the largest exclusive manufacturer of metal sawing machines and blades, both hack saw and hand saw type, we have the correct answer to your cut-off problems. Each MARVEL model has a distinct application, so write us and we will send our catalog, price, and recommendation for the saw to fill your requirements most efficiently. MARVEL sawing engineers are also available to discuss and analyze your cut-off work. (Without obligation of course.)

ARMSTRONG-BLUM MFG. CO.

5700 W. Bloomingdale Ave., Chicago 39, Illinois, U.S.A.

Top Quality
CLEVELAND FASTENERS

help you bring your products
off the line faster

CLEVELAND
Top Quality
FASTENERS

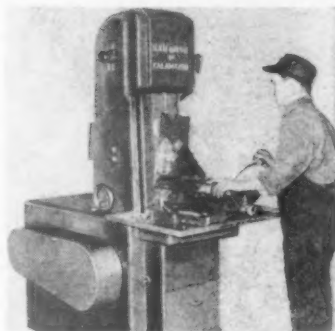
The Cleveland Cap Screw Company

2922 EAST 79TH STREET • CLEVELAND 4, OHIO

Warehouses: Chicago, Philadelphia, New York, Los Angeles

MADE BY THE ORIGINATORS OF THE KAUFMAN PROCESS FOR GREATER STRENGTH AND ACCURACY

(Continued from page 134)
GIANT BELT GRINDER



HERE is 10" wet-n-dri abrasive belt grinder just announced by Hammond Machinery Builders, Inc., 1633 Douglas Ave., Kalamazoo, Mich. It carries a 10" belt and weighs over a ton. It is said that any material that can be ground can be surfaced or finished on this Model V-10, and that many jobs now being done on shapers, milling machines, surface grinders, disc grinders, etc., can be finished faster and better on this grinder.

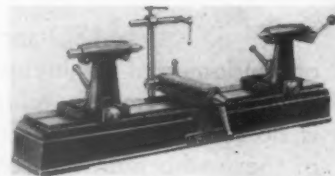
Machine will accommodate various types of tables and wide variety of holding fixtures. Large capacity coolant tank unit is located in base.

FOR THE CONTROL OF COMPRESSOR OPERATIONS

INSTRUMENT for the control of compressor operations which combines seven devices into a single, neat,

compact unit, is announced by the Electro-Mechanical Divn. of Manning, Maxwell & Moore, Inc., Bridgeport, Conn. It is known as the Ashcroft Compressor-Trol. It is made in three sizes, namely 1/2", 3/4" and 1 1/4", to cover all requirements of tank mounted compressors up to 15 HP or 60 cu. ft. It is equipped with Ashcroft Duraswitch. Illustrated catalog will be sent on request.

BENCH CENTER



UNIQUE advantages in design, construction, and operation of indicator support bracket is claimed for Bench Center announced by Delta Manufacturing Co., Milwaukee 1, Wis. Said to be truly "universal" bracket, has base that can be locked in any position on bed by merely operating handle at front. Head and tail stocks of center may be reversed so that unit may be operated from either side. Bench Center has maximum distance between center of 19 1/8". Overall length is 32", width 5 1/2", and ground bed dimensions are 4 1/2" x 30".

(Continued on page 140)

Pressure Problems in Flexible Lines

THE ANSWER IS TITEFLEX!

IN MANY AN INDUSTRIAL APPLICATION, flexible lines are required not only to withstand high pressures—but to withstand other adverse conditions as well. Sometimes it's *heat*. Sometimes it's *cold*. Often it's *corrosion*. Usually, it's *vibration* as well, or movement and flexing. It's a tough job for *any* line! But time after time Titeflex has demonstrated it can "take it" and come through with flying colors.

- It's easy to see why. For Titeflex superiority lies in a *combination* of construction features—not in one feature alone. Titeflex is all metal—and accordingly is not damaged by temperature extremes, by oils, or most types of acids. But Titeflex all-metal construction provides not one but *four* thicknesses of metal at the point of greatest wear. That means greater durability. Again, Titeflex is protected by metal braiding—but this braiding is woven

onto the tubing as it is made—never slipped over the tubing after it is completed. That means greater strength—freedom from elongation, protection against "ballooning" under strain. And together, these features mean that properly-applied Titeflex is ideal for a wide range of pressure applications.

- Today, in keeping with its policy of constant improvement, the engineering staff of Titeflex is extending even further the pressure range of Titeflex Metal Tubing—making it adaptable to even tougher applications. No matter what your pressure problem may be—for your present or post-war planning—the advice and recommendations of this staff are yours for the asking.

TITEFLEX, INC.
533 Frelinghuysen Avenue
Newark 5, N. J.





Model #1743. A 50:1 ratio scale with a special counting tray to give correct count even down to an odd piece! COUNT faster—more accurately.

With Postometer #4601 you just press the key and you know the postage—one figure to show the entire amount. Ends bottlenecks in busy shipping departments.

Keep production flowing with Model #1C-71-05! Indicates every 1/4 oz.; exclusive "Target-Pointer" eliminates error. Available with platter, scoop, high or low back plate.

Saving *Industrial Hours in* **PACKAGING • SHIPPING • INVENTORY**

Keep 'em rolling is still the password of the present emergency. Industry must s.t.r.e.t.c.h every ounce of available manpower—prevent needless waste of man hours all the way down the production line—double, triple, quadruple the work in half the time!

DETECTO-GRAM scales are the scales for manpower-shortage days. They speed operation, multiply man hours, and cut costs in key parts of your plant. Scales are industrial machinery. The right scale in the right job means the job done faster with fewer men!

There is a DETECTO-GRAM precision scale for every industrial need! Write for a FREE demonstration TODAY.

DETECTO SCALES INC.

BROOKLYN 1, NEW YORK

Scale Engineers in
All Principal Cities

Send inquiries to DETECTO SCALES, INC. • 4 MAIN STREET • BROOKLYN 1, N. Y.

(Continued from page 138)

ACCURATE REFLEX TORQUING

STURTEVANT Sensory torque wrench is announced by the P. A. Sturtevant Co., Addison, Ill., that in use "is faster than thought". It embodies "sound" and "feel" features.

As torque is applied with the wrench and at the exact instant the "set" torque is reached, the sensory action sounds a loud and distinct click and imparts a definite strong impulse to the hand. Thus through three senses, sight, sound and feeling, operator "automatically releases (by reflex action)" his pull on the wrench even before the conscious mind reports it making torque both fast and dead accurate." Printed matter available.



ENTIRELY NEW TACHOMETER



TACHOMETER said to be different from everything on the market in that it weighs but 5½ ounces and is 2¼" in diameter, permitting one hand operation, has been developed by Standard Machinery Co., Providence, R. I. Range of instrument runs from 500 to 3600 RPM. Recordings are readily read without the use of timing or counting device. Scale consists of black figures against orange background. Readings are constant and record fluctuations, according to the manufacturer. Unit has pointed contact spindle for use with shafts that are centered, and elastic tip for use on shaft ends that are not centered.

IMPROVED WELDING GOGGLE

IMPROVED AO Duraweld welding goggle which is said to provide better protection and greater comfort for welder's eyes is announced by American Optical Co., Southbridge, Mass.

Automatically molded eyecups have larger more comfortable edges, rounded to fit flush against the contour of the face. Improved nasal fitting adds to comfort and safety. New design side shields provide increased ventilation to keep eyes cool and prevent fogging of lenses. Louvers are so designed that it is impossible for stray light rays or sparks to reach the eyes. Fitted with Noviweld lenses in 3, 4, 5, 6 or 8 shades. Optional equipment includes Filterweld lenses, Noviweld-Didymium lenses, or Super Armorplate Calobar lenses.



(Continued on page 144)

Insure Better Performance



Specify Ladish *Controlled Quality* Forged Steel Pipe Fittings

Ladish forged steel fittings, carbon and alloy, are produced under exacting metallurgical control. Every Ladish fitting bears the symbol of Controlled Quality—the Ladish Heat Code.



Forged Steel Screwed Fittings

Full depth thread, accurately cut, results in pressure-tight joints. Pipe enters easily. Uniform thickness. Sizes clearly marked . . . $\frac{1}{8}$ " through 4".

Socket Welding Fittings

Speed up installation because deep sockets save time formerly required to cut pipe to exact length. Socket supports pipe and allows self-alignment. No machining of pipe necessary for fit. **ASSURED WELDABILITY.** Sizes clearly marked . . . $\frac{1}{8}$ " through 4".



TO MARK PROGRESS



FITTINGS DIVISION

LADISH DROP FORGE CO.

CUDAHY • WISCONSIN

MILWAUKEE SUBURB

New York Office: 60 E. 42nd Street, New York City

Houston, Texas Office: 1005 Sterling Building



Ready to use...

NEW *Catalogue*

72 pages...lists and describes the most complete sleeve bearing service in the world. Write for your copy...TODAY.

Johnson General Purpose Bearings save precious time in many ways. When you place your order you have over 800 sizes to choose from. This enables you to buy exactly according to your needs. Every General Purpose Bearing is completely machined inside—outside and ends. Thus they are ready for immediate installation. There is no extra machining . . . no cutting down . . . no excess stock to remove. Oil grooving slots or holes are easily, quickly and economically added when necessary.

When properly installed, Johnson General Purpose Bearings will deliver a maximum of service with a minimum of attention. The next time you need plain, cast bronze bearings—call in your local Johnson Distributor. Permit him to show you how to save both time and money . . . how to avoid waste and delay by specifying Johnson General Purpose Bearings.

JOHNSON
SLEEVE BEARING
450 S. MILL STREET



BRONZE
HEADQUARTERS
NEW CASTLE, PA.

Which one are you?



PURCHASING AGENT: "No time to take chances these days. To get the right lamps for the right job—every time—we go right to G-E. It pays big time-saving dividends and today that's more important than ever."

Each of these men has a different lighting problem. Read how G-E lamps are helping him to solve it.



FACTORY MANAGER: "We've got to keep production rolling at top speed, on precision work as well as simple assembly jobs. With good lighting... from G-E Mazda lamps... eyes see quicker and hands move faster. That helps keep us right on schedule."



PRODUCT DESIGNER: "If you're stuck for new ways to add sales appeal... as we were... then consider all the possible uses for G-E Mazda Lamps as quick visual indicators. They may be the solution to help you make your products better, more dependable and easier to sell."



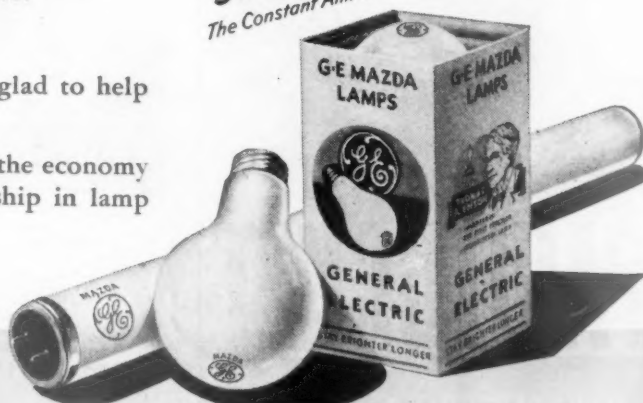
MAINTENANCE MAN: "No wonder we've cut down on maintenance time! General Electric lamps are just as near as the telephone. When we need lamps quick... in an emergency... G-E gets them here in a hurry."

PLANNING a postwar program? Want all the benefits of faster, easier seeing with soft, cool G-E fluorescent lighting? Or do you need special G-E lamps that will help do tough jobs better?

Then remember these two important facts:

1. Get the *right* lamp. Your G-E lamp supplier will be glad to help... and he knows how to serve your needs best.
2. Be sure you specify G-E Mazda lamps. They give all the economy and efficiency developed by over 50 years of G-E leadership in lamp research. They're made to "stay brighter longer."

**"TO MAKE G-E LAMPS
STAY BRIGHTER LONGER"**
The Constant Aim of G-E LAMP RESEARCH



G-E MAZDA LAMPS
GENERAL  ELECTRIC

KEEP BUYING WAR BONDS...
KEEP THE WAR BONDS YOU BUY

Hear the G-E radio programs: "The All-Girl Orchestra," Sun. 10 p.m. EWT, NBC; "The World Today" news every weekday, 6:45 p.m. EWT, CBS.

USE HEADED AND THREADED FASTENERS
FOR ECONOMY AND RELIABILITY

BOLTS NUTS STUDS

Carbon Steel-Heat-treated
Alloy Steels-Stainless Steel
- Silicon Bronze - Brass -
Bronze - Monel Metal.

Accurately made in stand-
ard dimensions or to meet
your specifications.



BETTER BOLTS
SINCE 1882



"THE BOLT MAN"

PAWTUCKET

MANUFACTURING COMPANY
327 Pine Street, Pawtucket, R. I.

THE PLACE TO SOLVE YOUR BOLT PROBLEMS

(Continued from page 140) AUTOMATIC BENCH VISE



VISPEED is the name of a powerful air or hand-operated bench vise developed by The Bellows Co., Akron, Ohio. It consists of a 4" Reed bench vise operated by an 8" foot-controlled air cylinder. Clamping pressures are adjustable from zero up to 2½ tons. It operates through the full range of the 6" jaw opening, and is foot controlled. Slight toe pressure closes the jaws, heel pressure opens them.

INDUSTRIAL USES FOR NEW ADHESIVE

Application is by brush, gumming machine, spreader, dipping, flow or spray gun. When dry, it is flexible with heat sealing properties. When used in liquid state for bonding materials, it can be applied to one or both surfaces. Used as replacement for rubber latex, may be combined with many materials, paper, plywood, felt, plastics, leather, etc. Packaged in 1, 5, 30, and 55 gals.

PLIASTIC Cement is name of synthetic resin adhesive announced by Paisley Products, Inc., Chicago.

RIGHTOP WORK TABLE

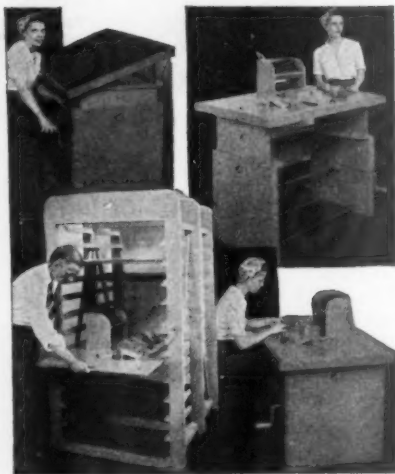
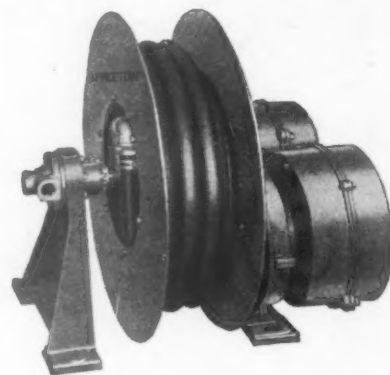


ILLUSTRATION shows Rightop work table and rack developed by the Voss Machinery Co., 2816 West Liberty Ave., Pittsburgh, Pa. Manufacturer states that together with the holding rack it keeps up to 12 jobs "on the board" at one time. Top is easily removable, simply lifts off and slides into the rack until it is needed again. Twelve tops gives the equivalent of a dozen work tables. Adjustable as to height by turning crank. Top may be tipped at any angle operator wants.

DIESEL ENGINE OIL FILTERS

IMPROVED standard line of round tank fuel oil filters for Diesel engines has been developed by Briggs Clarifier Co., Detroit, Mich. Flow capacities range up to 500 gph. For small, high speed Diesels, clarifier is designed for maximum working pressure of 100 psi and is hydrostatically tested at 105 psi. For larger engines, pressure is 40 psi and is tested at 60 psi. Pressure drop across refills ranges from 0 to 5 psi on all models.

HEAVY-DUTY WATER REEL



HEAVY-duty water reel as illustrated is manufactured by the Appleton Electric Co., 1701 Wellington Ave., Chicago, Ill. It is built to accommodate 50' of 1" I. D. by 1½" water hose for use on special machinery. Powered by two motor springs that work in series and two units that work in parallel providing the spring power for hose take-up. The manufacturer states that the swing joint is especially designed for this service with an internal ball bearing furnished with stainless steel ball to prevent corrosion.

MARKING AROUND HOLES



UNIVERSAL marking device for use where markings must be stamped uniformly around the circumference of round houses has been developed by the New Method Steel Stamps, Inc., 147 Jos. Campau, Detroit, Mich. It is said to offer economies for the annular marking of bushings, sleeves, gears, etc. when there are large quantities of parts to be stamped with identical series or numbers. Device consists of a pilot holder and a removable bushing or marking die.

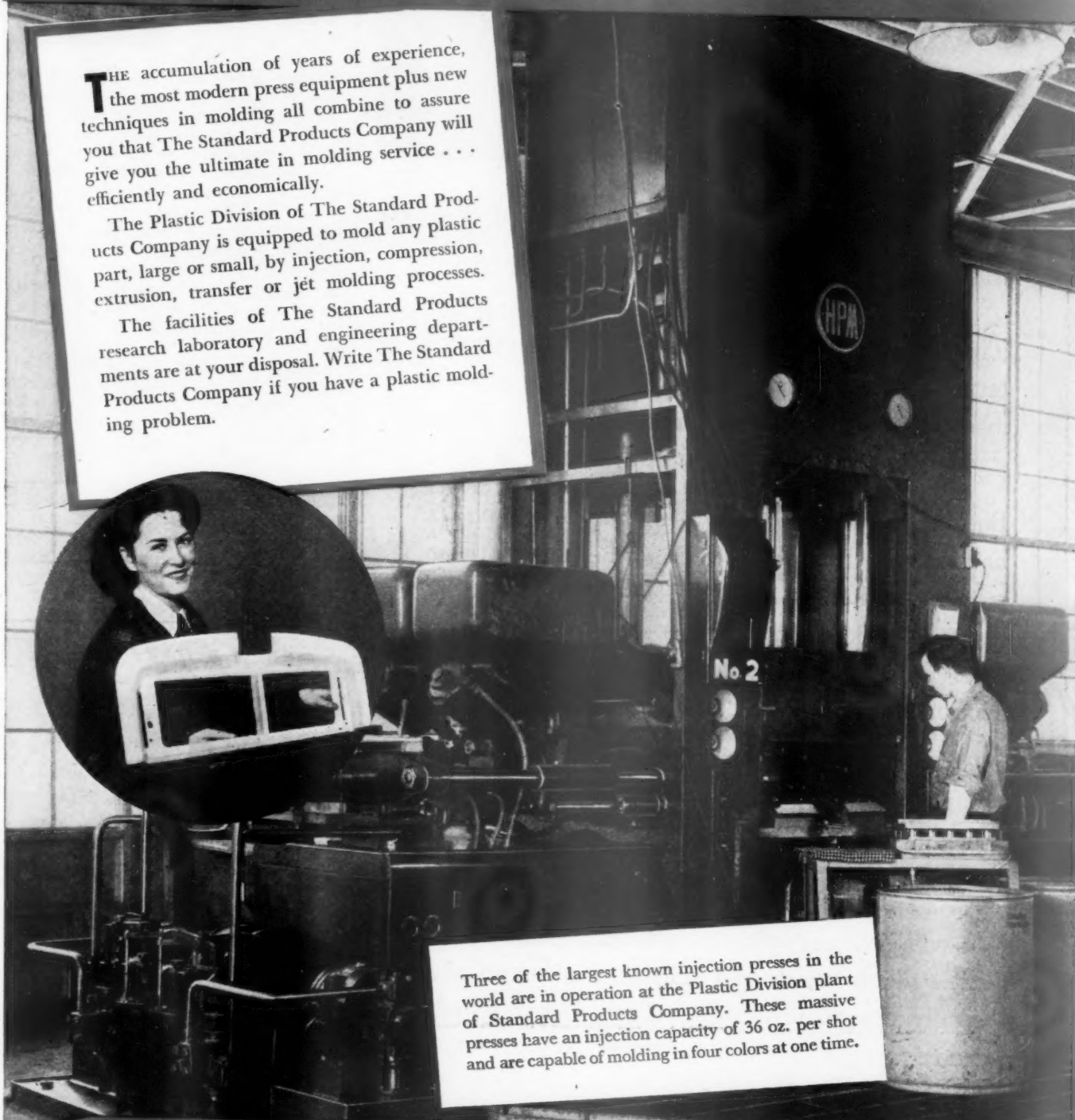
(Continued on page 146)

WE HAVE THE TOOLS TO DO YOUR JOB

THE accumulation of years of experience, the most modern press equipment plus new techniques in molding all combine to assure you that The Standard Products Company will give you the ultimate in molding service . . . efficiently and economically.

The Plastic Division of The Standard Products Company is equipped to mold any plastic part, large or small, by injection, compression, extrusion, transfer or jet molding processes.

The facilities of The Standard Products research laboratory and engineering departments are at your disposal. Write The Standard Products Company if you have a plastic molding problem.



Three of the largest known injection presses in the world are in operation at the Plastic Division plant of Standard Products Company. These massive presses have an injection capacity of 36 oz. per shot and are capable of molding in four colors at one time.

THE STANDARD PRODUCTS COMPANY

General Offices and Research Laboratory

505 Boulevard Bldg.

• Woodward Ave. at E. Grand Blvd.

• Detroit 2, Mich.



TIME AND MONEY SAVERS

Swing Frame Grinders, Idler Backstands using METALITE CLOTH Belts

The pressure for speed in turning out war materials greatly accelerated the installations of such machines—Swing Frame Grinders and Idler Backstands, both employing fast-running abrasive belts.

But long before that, increasing numbers of plants had reaped the many benefits inherent in these modern mechanical aids that do better work faster and at much lower costs than old methods. In some cases four times the output, in others at a reduction of 75% in time.

These records forecast further and faster adoption of such time and money saving methods which could well have the prompt attention of all mechanical and purchasing personnel.

We will gladly supply information on the equipment (which we do not sell) as well as on the specially designed Metalite Cloth Belts (which we do).

Just a few lines on your letterhead

Offer valid only in U. S. A.



BEHR-MANNING · TROY, N. Y.

(DIVISION OF NORTON COMPANY)

RELIABLE COATED ABRASIVES SINCE 1872

(Continued from page 144)

OIL HEATING UNIT

AUTOMATIC oil circulating and heating unit, Model S-12, to provide heat transfer oil to machines which require elevated temperatures, is announced by Youngstown Miller Co., Sandusky, Ohio.

Typical model has 12.8 KW of electric heaters applied externally to the heating portion of the tanks and capacity for 12 gallons of oil. By adjustment of the thermostats any three temperatures can be pre-selected between 200° and 500° inclusive. Heated oil is circulated by a rotary pump driven by ¼ HP 1150 r.p.m. direct connected motor. Selected switch enables operating with the circulating pump without heat, circulating pump with a portion of the heaters, and circulating pump with all of the heaters. Units of various size available.



ARC WELDING ELECTRODE HOLDER

Model 7, Mich., is said to be its unusual lightness. Models A-4 that takes rods to ¼" and A-5, rods to 3/8" show 40% weight reduction over other Jackson tong-type holders of same capacity. Other claimed features are easily replaceable copper jaws, metal-clad jaw insulators, free flowing ventilation.

OUT STANDING
feature of arc-
welding electrode
holder, manufac-
tured by Jackson
Products, Detroit

NEW ROTARY PUMP



LOW pressure, rotary pump designed for industrial application which is said to afford an efficient and economical method for pumping all types of liquids having lubricating qualities, is announced by the John S. Barnes Corp., Rockford, Ill. It is said to be adapted for use as a lubricating booster pump for oil lines, a gasoline dispensing pump, and for oil pressure systems on automotive equipment. Capacity of the pump ranges proportionately from one gallon per minute at 600 rpm to four gallons per minute at 2400 rpm. Pump is self priming and all moving parts are self lubricated. Any fluid with lubricating qualities can be pumped. Weight 3½ pounds. Literature available.



A NEW AVIATION CATALOG!

Weatherhead "A-N" Fittings—Now and Postwar

The Weatherhead Company were pioneers in the manufacture of aircraft fittings. Many of the most important design changes on aircraft fittings were originated by Weatherhead. Our facilities, now and *in the future*, will be directed to the volume production of high-quality fittings, hose assemblies, valves, and actuating cylinders. All of the necessary designs, specifications, and photographs on these products are contained in our new Aviation Catalog.

SAVE TIME SAVE MONEY SAVE EFFORT


Write for this handy source book today.

SIX SECTIONS

for quick reference

- AN Fittings
- AC 811 Fittings
- Flexible Hose
- Hose Assemblies
- Valves and Cylinders
- Complete Engineering Data

Weatherhead Engineers will be glad to work with you to solve your fittings and hose assemblies problems. Our new Development Laboratory is at your disposal for the creation of new fittings and other products to meet your special requirements.

Look Ahead With 

Weatherhead

THE WEATHERHEAD COMPANY, CLEVELAND, OHIO

*One of the Oldest and Largest Manufacturers
of Vital Parts for the Aviation Industry*



A MESSAGE FOR THE P.A.

LOWELL'S FOR TOMORROW



THE OLD RELIABLE WRENCH

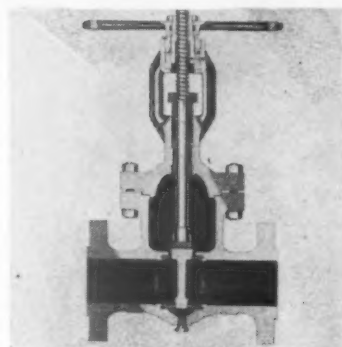
1869 LOWELL WRENCH CO.

Worcester, Mass. 1944

Incomparable when a rugged socket wrench is required, especially in tight places or long runs and where heavy leverage is needed. Used on pipe coupling, steel construction, timber bolting, culvert connecting, staybolt caps, cable clamps grease plugs, countersunk plugs, tunnel liner plates, wood tank and silo bands, railroad track bolting, water gates, etc. A time saving tool in refineries and on construction jobs.

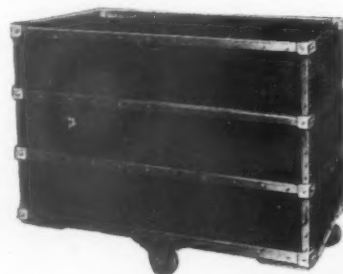
LOWELL

STEEL GATE VALVES



LINE of cast steel gate valves, with basic improvements in design, has been introduced by The Edward Valve & Mfg. Co., East Chicago, Ind. To achieve perfect alignment of all working parts, close fitting wedge guide ribs eliminate wear-producing drag across seating faces. Seat rings are hard surfaced and welded integrally to the body. Valves 4 in. and larger are ball bearing equipped. The new valves are being built in 300, 600, 900 and 1500 lb. sp classes, and in sizes 2½ to 12 in. inclusive. Catalog 12-EI available on request.

BOX TRUCKS



LINE of box trucks made of case hardened fibre and well seasoned lumber, especially adapted for light materials and parts handling and warehouse use, is being marketed by the Standard Holloware Corp., Whitestone, N. Y. They are reinforced with solid oak ribs and joined by custom made hardware, and mounted on five-inch free wheeling casters with rubber tires. They are available in six standard sizes ranging from 36 x 18 x 24 to 48 x 30 x 30, and may be had in three styles, box open side and drop side, the latter having drop-side approximating one-third the height of the box.

1 1 1

LAMINATED PLASTIC SHEETING

A major enclosure problem confronting manufacturers of pressurized, high altitude planes such as new the B-29 Superfortress is being solved with laminated Lucite-Butacite plastic sheeting, according to E. I. du Pont de Nemours & Co., Plastics Department, Arlington, N. J. The laminated sheeting reduces the possibilities of major rupture common to solid enclosures of plastic on planes flying

(Continued on page 150)



NO DIES!

"DIE-LESS" DUPLICATING...

a new industrial technique made possible by the accuracy, adaptability and ease of operation of DI-ACRO Precision Machines—Shears, Brakes, Benders—especially when used as a continuous, integrated production process.

The DI-ACRO System of "Metal Duplicating Without Dies" makes parts just as accurately as can be done with dies, to a tolerance of .001" in all duplicated work. The delay of waiting for dies is avoided, deliveries speeded up.

Write for Catalog

"DIE-LESS" DUPLICATING

The DI-ACRO System of Metal Duplicating Without Dies

"DIE-LESS" DUPLICATING

"DIE-LESS" DUPLICATING

"DIE-LESS" DUPLICATING

"DIE-LESS" DUPLICATING

"DIE-LESS" DUPLICATING

"DIE-LESS" DUPLICATING

"DIE-LESS" DUPLICATING

"DIE-LESS" DUPLICATING

"DIE-LESS" DUPLICATING

"DIE-LESS" DUPLICATING

"DIE-LESS" DUPLICATING

"DIE-LESS" DUPLICATING

"DIE-LESS" DUPLICATING

"DIE-LESS" DUPLICATING

"DIE-LESS" DUPLICATING



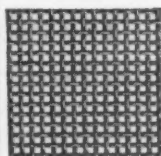
BRAKE

O'NEIL-IRWIN MFG. CO.

305 EIGHTH AVE. SO., MINNEAPOLIS 15, MINN.



and WIRE CLOTH PRODUCTS



SOLE responsibility by one company for workmanship, economy and scheduling of your wire cloth requirements.

Drawing the wire, weaving the wire cloth, fabricating the product, all in one continuous production line.

Send Michigan Your Inquiries

Established 1860

MICHIGAN WIRE CLOTH CO.

2100 HOWARD • DETROIT 16



Meet. the three sheet steel "Paint-Grippers"

These paintable surface-treated sheet steels suggest many new cost-saving, product-improving opportunities. Two of these special ARMCO PAINTGRIP sheet steels are given the definite rust protection of zinc coatings before they are Bonderized at the mill. Bonderizing neutralizes the chemical action of zinc on paint; it prevents premature flaking and peeling of the paint or enamel. Moreover, it eliminates all "makeready" costs before painting. There are three ARMCO PAINTGRIP grades—a surface-treated sheet for every requirement. One of them is likely to "fill the bill" for you.



1



1. The ARMCO Cold Rolled PAINTGRIP "Man" has a light electrolytic "flash" of zinc under a Bonderized surface. He will draw, form, weld, and solder readily. His uniformly smooth surface insures a handsome appearance when painted. He is ideal for products that are not subjected to severe corrosive conditions. Before painting he resists rust during shipment and in normal storage conditions.

2



2. For utmost rust-protection in corrosive applications, the ARMCO Galvanized PAINTGRIP "Man" gets a full zinc coating and then is mill-Bonderized. Like others in the family, he takes paint readily and helps preserve it. His habits in forming operations are good, but if you want deep-drawing qualities you'll want to meet . . .

3



3. ARMCO ZINCGRIP-PAINTGRIP. He's the born-contortionist of the zinc-coated family. His forming and deep-drawing qualities are excellent; his full zinc coating clings tightly to seams and corners as well as flat parts. He takes and holds paint as well as the rest of the family. (For zinc-coated products that do not require painting, ARMCO ZINCGRIP without the PAINTGRIP treatment can be specified).

★ ★ ★

Write us for more information about these paint-gripping sheet steels. They can make your products look smoother and more attractive and make them last longer. Just address The American Rolling Mill Company, 3361 Curtis Street, Middletown, Ohio.

THE AMERICAN ROLLING MILL COMPANY



**May Enable You to Use A
Crate Instead of a Case!**

**...or to
ship in
open cars**



Decreased shipping cost, with definite assurance of protection from rain and dirt, has been achieved by many manufacturers who have used FIBREEN to line crates that replaced boxes. In some instances, wrapping with FIBREEN enabled the shipper to eliminate the crate.

Diesel engines, electric motors — heavy machinery of all kinds — are being shipped in low cost crates made possible by the use of FIBREEN. In the textile industry, FIBREEN has replaced as many as three different wrappings and the single thickness of FIBREEN gives greater protection at lower cost. Many products, formerly shipped in box cars, are now shipped in open cars and protected by FIBREEN.



Use FIBREEN

for Small Packages

Small packages arrive at destination with contents unharmed by dirt or moisture when wrapped in FIBREEN. For shipments of parts, FIBREEN is especially desirable.

Get A Sample — Test It!

Get a piece of FIBREEN in your hands. *Crumple it!* See how it resists tearing! See why Fibreen was so successfully used to protect war shipments from rain, ice, salt spray and dirt — and how its use can help *you* cut costs and protect your products in transit.

SISALKRAFT leadership is the result of the unmatched performance of its products for nearly 25 years, plus an engineering research service that has developed outstanding sisal fibre-reinforced papers and improved methods of packing and shipping.

Send for a sample of FIBREEN and
data on its many applications.

**THE
SISALKRAFT CO.**
205 W. WACKER DRIVE - CHICAGO 6, ILL.
NEW YORK - SAN FRANCISCO - LONDON - SYDNEY

Manufacturers of SISALKRAFT, FIBREEN, SISAL-X,
SISALTAPE AND COPPER-ARMORED SISALKRAFT

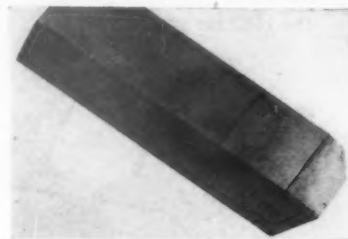
(Continued from page 148)

at high speeds under pressurized conditions when the enclosures are pierced by bullets. Laminated Lucite-Butacite sheeting consists of a single layer of Butacite polyvinyl butyral resin sandwiched between two layers of Lucite methyl methacrylate resin. Outstanding properties of the new enclosure laminate include good self-sealing tendencies, good impact strength, improved shatter-resistance, ease of forming and excellent transparency and weathering characteristics. Holes created by bullet penetration close up almost completely because of the rubber-like nature of the Butacite interlayer sheeting. Entire output of the laminated sheeting is allocated for direct war use.

1 1 1

NEW METHOD OF TIPPING TOOLS

Two silver-copper and one copper alloys available in fine powder form for tipping tungsten carbide and high speed steel tools have been developed by Eutectic Welding Alloys Co., 40 Worth St., New York, N. Y. They are said to be economical to use for the required flux is



EutecRod Tipped Tool

mixed in with the powdered alloy, eliminating waste of flux during the preparation. The alloys are EutecRod 1800 (lowest melting) for H.S.S., 940°-1140° F; EutecRod 1601 (high tensile) for tungsten carbide, 1020° - 1250° F; and EutecRod 16 (heat resistant, high tensile) for tungsten carbide, 1300° - 1750° F, furnace temperature.

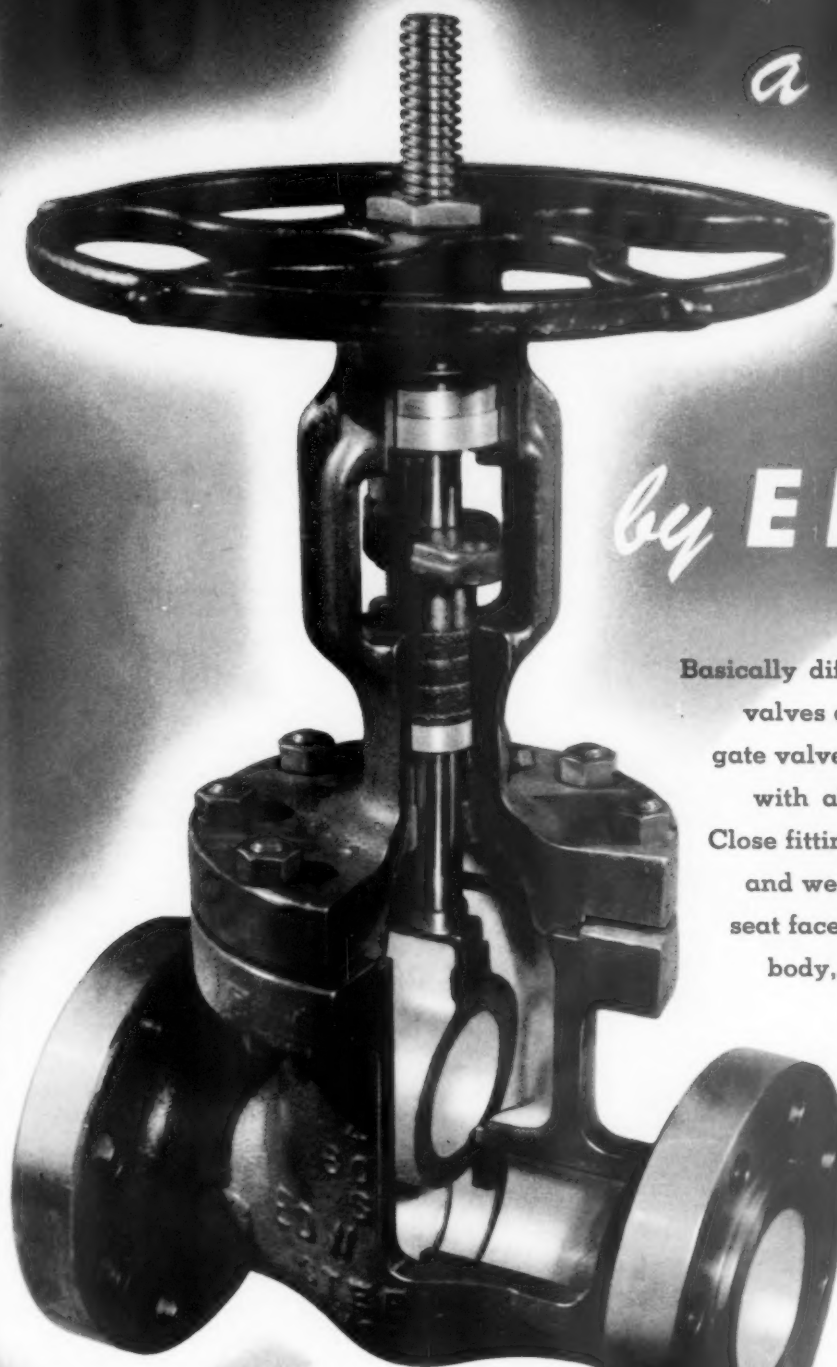
After the customary degreasing and grinding, the powdered alloy is spread on the surfaces to be joined and the tungsten carbide tip is placed on top. The assembly is then heated until the alloy melts. The metal flows freely at a very slight increase in temperature above the melting point since the weld metal is pulverized. Oxidation of the tungsten carbide is prevented, as each particle of molten alloy immediately "tins" and adheres to the surfaces being joined.

1 1 1

NEW BRIGHT ALLOY PLATE

Announcement is made of the new HVWM bright alloy plating process, developed in the laboratories of the Westinghouse Electric & Mfg. Co., and used as a protective coating on electrical products. The coating consists of an alloy of copper, tin and zinc. The anodes are composed of copper, tin and zinc. The process is especially novel in that alloy anodes of the same composition as the

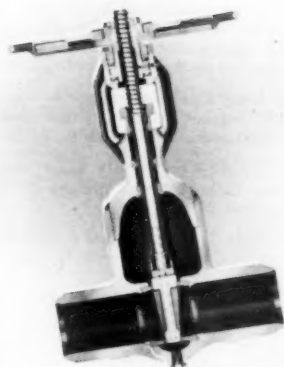
(Continued on page 154)



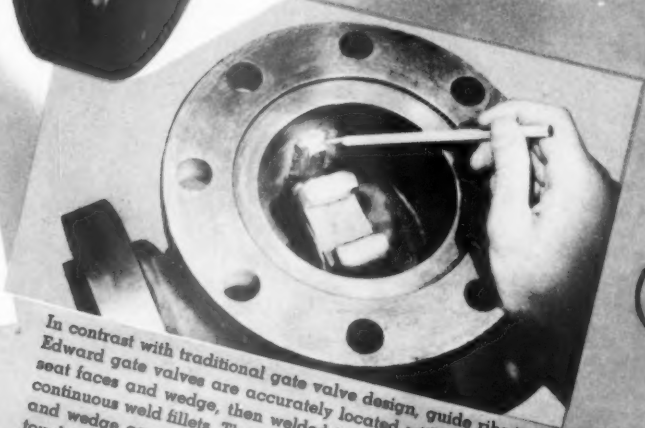
a new, better GATE VALVE by EDWARD

Basically different in design, Edward cast steel gate valves are tight, *stay* tighter than you thought gate valves could.... Here at last is a gate valve with all working parts in perfect alignment. Close fitting guide ribs, located *after* seat rings and wedge are in place, prevent wedge drag on seat faces. Hard faced seats are integral with body, yet replaceable. And with the new Edward gate valve testing method, *both* seating faces must be tight simultaneously....

The new Edward gate valves are built in 2½ to 12 in. sizes for service from 150 to 3600 lb. In many sizes and pressure classes they are available for immediate shipment.



Simple, functional, long lived, easy to maintain. Edward gate valves have no unnecessary parts, no pockets or recesses within the body to encourage start of excessive corrosion.



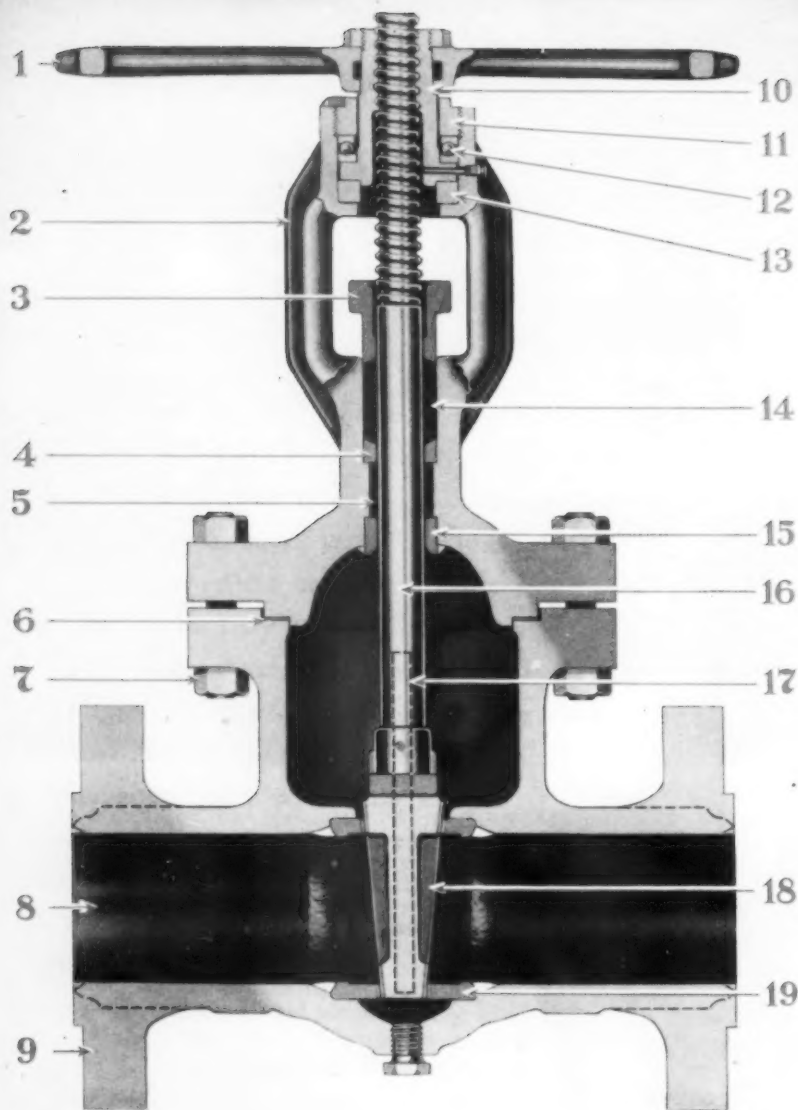
In contrast with traditional gate valve design, guide ribs in Edward gate valves are accurately located with respect to seat faces and wedge, then welded integrally to body with continuous weld fillets. Thus clearances are cut to minimum and wedge can travel practically to closed position before touching seating faces, greatly reducing wear.



DESIGN FEATURES

of the new

EDWARD Cast Steel GATE VALVE



NEW GATE VALVE CATALOG READY!

The Edward Valve & Mfg. Co., Inc.
East Chicago, Indiana

Please send your new Catalog No. 12-E illustrating and describing Edward cast steel gate valves.

Name _____

Company _____

Position _____

Street _____

Zone _____

State _____

City _____

1 Large diameter handwheel. Edward patented Impactor handwheel available on order.

2 Cast steel one-piece outside screw and yoke type bonnet.

3 Steel gland, through-bolted for easy packing adjustment.

4 Junk ring, EVALized for resistance to galling and wear.

5 Large cooling chamber protects packing.

6 Edward male-female body-bonnet joint.

7 Alloy steel studs, threaded entire length for evenly stressed fit. Nuts tightened with torque wrenches for uniform gasket loading.

8 Cast steel body with equalized metal sections to prevent stress concentrations. Tapped hole in body below wedge makes clean-out easy.

9 ASA flanged ends or welding ends.

10 Alloy yoke bushing, EVALized to reduce wear. Alemite fitting for lubrication of bushing and stem threads.

11 Hardened EVALloy stainless steel yoke bushing locknut with flats for easy removal.

12 Ball thrust bearings in sizes where torque to operate valve exceeds that comfortably exerted by one man. Two ball bearings in large sizes, one in medium sizes, EVALized non-galling bearing plates in small sizes.

13 EVALized steel lower bearing plate reduces friction and eliminates galling.

14 Specially processed EVALpak packing. Top and bottom rings jacketed and reinforced with Monel wire.

15 EVALloy bonnet bushing for pressure-tight corrosion-proof backseat with stem shoulder.

16 Heat treated EVALloy stem of uniform diameter with heavy tee-head making full contact with wedge slot for uniform pull on wedge. Self adjusting radial backseating shoulder.

17 Long steel wedge guides accurately located with respect to seat rings and wedge, then welded integral with body.

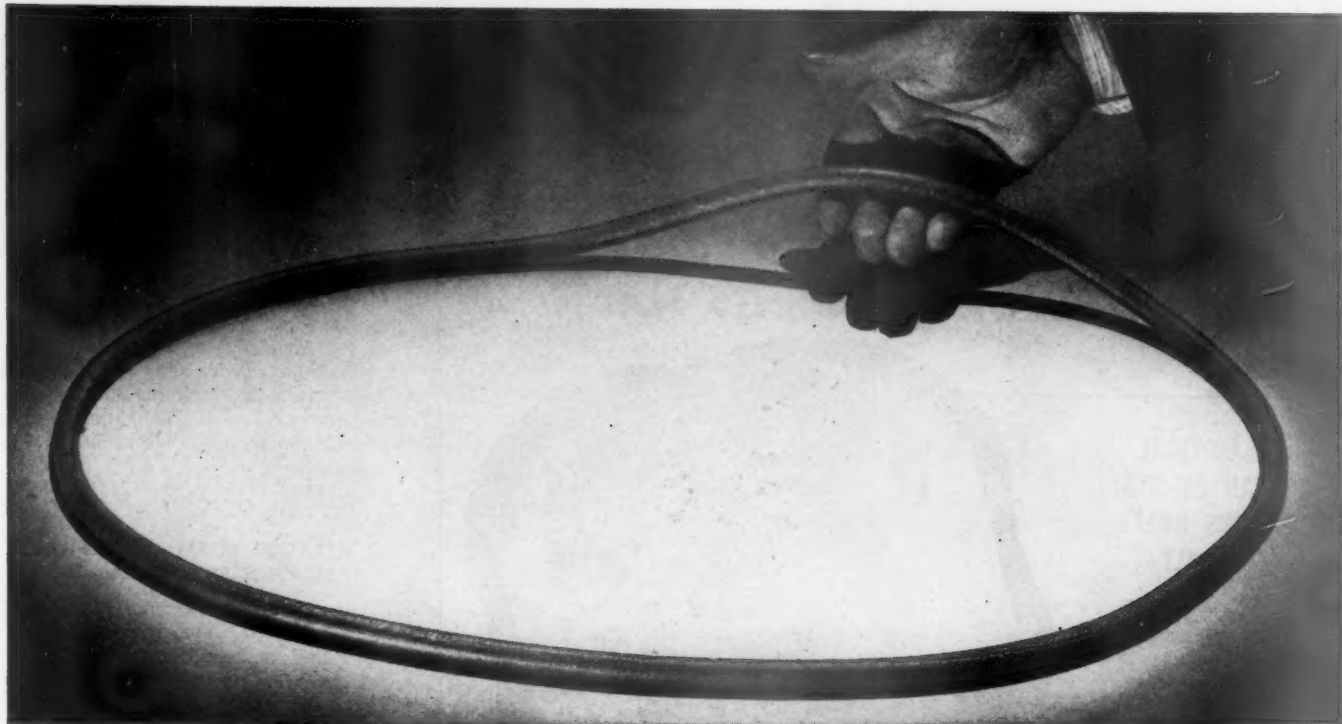
18 EVALloy or Stellite hard faced wedge with wide contact areas ground to mirror-like flat surfaces.

19 Rolled or forged steel Stellite hard faced seat rings, welded integral with body. Replaceable.

THE EDWARD VALVE & MFG. CO., Inc.

EAST CHICAGO, INDIANA

Edward Cast and Forged Steel Valves: Globe and Angle Stop . . . Non-Return . . . Check . . . Blow-Off . . . Inlet (Integral Seat) . . . Feedline Stop-Check . . . Relief . . . Hydraulic . . . Gage . . . Strainers . . . Special Designs for all Pressures and Temperatures for Boiler Room, Petroleum, Marine, Industrial and Technological Services.



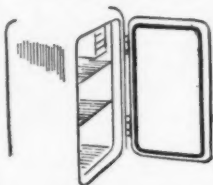
Available NOW for Industrial Production!

You can now obtain prompt delivery of cellular rubber in almost any form and quantity needed for industrial production. We com-



compound two basic types. Sponge rubber is *absorbent*, cells interconnect. Cell-Tite* is non-absorbent. Cells are individual, non-connecting, filled with inert gases. Hundreds of formulas developed by our staff enable us to control cell structure, weight, tensile strength, resistance to heat, chemicals, abrasion, oxidation. In addition to producing continuous cord in any diameter up to 2 inches we supply continuous tubing, sheets and molded parts; die-cut pieces, molded shapes, all compounded to meet your exact requirements. Tell us how you plan to use cellular rubber—take advantage of our 21 years experience in this field when you buy!

compound two basic types. Sponge rubber is *absorbent*, cells interconnect. Cell-Tite* is non-absorbent. Cells are individual, non-connecting, filled with inert gases. Hundreds of formulas developed by our staff enable us to control cell structure, weight, tensile strength, resistance to heat, chemicals, abrasion, oxidation. In addition to producing continuous cord in any diameter up to 2 inches we supply continuous tubing, sheets and molded parts; die-cut pieces, molded shapes, all compounded to meet your exact requirements. Tell us how you plan to use cellular rubber—take advantage of our 21 years experience in this field when you buy!



* Trade Mark registered

The "Rubber Band" that Unloosed a River of Gasoline

War is driving home an old lesson—there are no "unimportant details". Everything counts!

Take the sponge rubber gasket that seals the top of 42 gallon drums of aviation gas for example. A 55-inch circle of gasoline-proof cellular rubber, 1/2" in diameter. Costs only a few cents. It's expendable.

But because of this gasket drums can be made with removable heads. No more waiting for gasoline to trickle from a bung hole! Drums are emptied twenty times faster!

And shipping is speeded up all along the line. With less waiting time for empties every means of transportation from refinery to advanced air base operates more efficiently. Planes, trucks, ships, trains, make more trips. Fewer drums are needed. Those available can be used more often. Slight dents in rims and lids don't put drums out of service—the sponge rubber compensates for imperfections.

Cellular Rubber May Be Your Answer, Too!

There may be places in your production line where a few cents worth of cellular rubber could be mighty important. Even a tiny pad can dampen vibration, deaden noise, improve efficiency of a machine that costs hundreds or even thousands of dollars.

A cord or molded part can insulate against cold or heat or electric current; seal moisture in or out. Consult us about any problem of sealing, insulating, vibration dampening, sound control. Our technical staff is ready to work with you now.

Sponge Rubber Products Co.

132 Housatonic Avenue, Derby, Conn.

NEW YORK • CHICAGO • WASHINGTON • DETROIT

World's Largest Manufacturer of Cellular Rubber Products

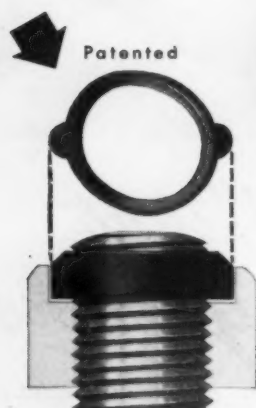
Security

THE
DEPENDABLE

LOCKNUT

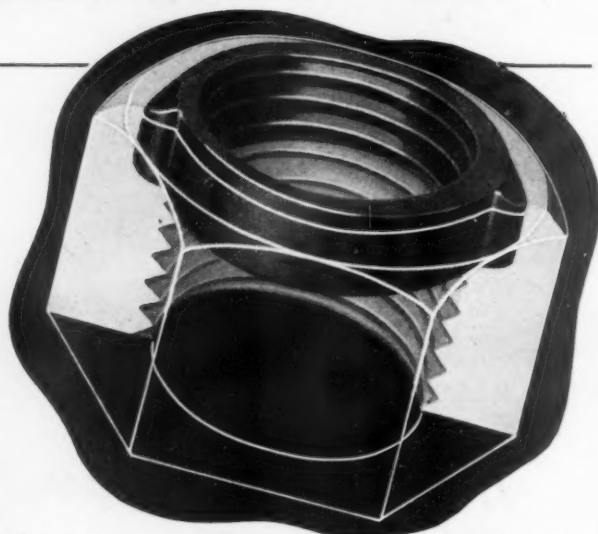
WORTHY OF ITS NAME

ELLIPTICAL
COLLAR OF STEEL
GRIPS BOLT
FIRMLY



SEND FOR SAMPLES,
PRICES, DATA—TODAY

Send for free samples for actual test on your product. Give them the "works" under the most severe conditions. Sizes: National Course 3/8" to 2", National Fine 3/8" to 1-1/2". Other sizes on special order. Write today!



The Security locknut is a combination of *standard nut* and *patented steel retainer*, fabricated into a permanent unit. It combines positive locking safety (regardless of vibration) and fine adjustment with speed, convenience, and economy in application. It's applied like any ordinary nut, but it *can't work loose* . . . yet it *may be re-used time and again* without losing its locking power and without injury to bolt threads! The secret is the *slightly elliptical*, heat treated alloy STEEL retainer collar, shown above at left. This steel retainer collar is not affected by temperature changes, and lasts the life of the nut. In use, retainer collar is forced into round by the pressure of the bolt, and its powerful spring tension causes the nut to lock *positively and permanently* in any position. Does *not* require bolt tension—no holes to drill in bolt—no cotter pins to forget or lose!

SECURITY LOCKNUT CORP., Dept. 1106, 630 S. Wabash Ave., Chicago 5, Ill.

SECURITY

LOCKNUTS *Stay Put*



Welded Stainless Tubing

4" to 14 3/4" O.D.

Uniformity in roundness and in quality of welding characterizes Pittsburgh Piping Welded Stainless Tubing. Available in most stainless alloys, in sizes 4" O.D. to 14 3/4" O.D., and in wall thicknesses ranging from 7/64" to 1/2". Write for data sheet.

PITTSBURGH PIPING & EQUIPMENT CO. 10 FORTY-THIRD ST., PITTSBURGH, PA.

(Continued from page 150)

deposit have been perfected. The plating solution is composed of ordinary chemicals and contains an organic addition agent having wetting properties. Nickel, gold, silver, copper and many other metals can be plated over or under this alloy deposit. The alloy deposit is readily soldered using rosin as a flux. The outstanding property of the bright alloy coating is its corrosion protective value when applied over copper or brass. It is harder than nickel and its wear resistance is superior to normal nickel deposits. It is non-magnetic in an electrical field. Throwing power of the solution is said to be superior to any other plating process commonly used. The Hanson-Van Winkle-Munning Co., Matawan, N. J., is sole agent.

1 1 1

PLASTIC FOAM WEIGHS ONE-SEVENTH AS MUCH AS CORK

Plastic foam weighing only one-seventh as much as cork has been developed and is being manufactured for important war uses by United States Rubber Company.

Important peacetime uses foreseen include insulation for trains, airplanes, automobiles and homes. In lifesaving



One-Seventh the Weight of Cork

equipment such as life preservers and floats and as buoyancy units on pleasure craft, this plastic foam will provide extreme buoyancy with minimum weight.

Although it has great buoyancy, it is semi-rigid. Because it contains so much air space, it has good insulation and sound-deadening properties in comparison to its weight. It weighs less than a pound and a half a cubic foot and can be made to weigh as little as three quarters of a pound per cubic foot.

To produce the new and different war material, a combination of synthetic plastic materials are foamed and then solidified. The new product is called *flotofoam* because of its buoyancy.

1 1 1

ALUMINUM PACKAGING FOIL AFTER THE WAR

The field of foil packaging has undergone a revolutionary change as the result

(Continued on page 156)

ALLIED WIPING MATERIALS ARE HELPING



"Wipe up the Gaps"

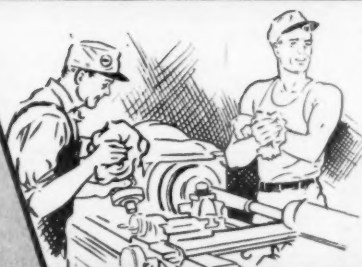


OFFICIAL
U. S. NAVY
PHOTO

Navy ships and Navy yards are using unprecedented amounts of wiping materials for the vast and complicated machinery of naval equipment. Conserve your wiping materials.



CERTIFIED PROTECTION FOR INDUSTRY



Protect your workers from the danger of contaminated wiping materials. Look for the Allied **CERTIFICATION OF STERILIZATION** that accompanies every shipment. Every Allied wiping cloth has been triple laundered, chlorine-treated and sterilized at 212 degrees Fahrenheit! That's your protection.

ALLIED WIPING MATERIALS CO.
CERTIFIED
WIPING CLOTHS
607 S. LUZERNE AVE., BALTIMORE-24, MD.

THREE-M-ITE FIBRE COMBINATION DISCS



A smoother surface in Double-Quick time!

When it comes to cutting down welds, removing excess metal, and conditioning metal surfaces, you can't beat the smooth-working efficiency of Three-M-ite Fibre Combination Discs. They are the kind of "tools" workmen appreciate . . . tough enough to take the punishment of high speed grinding, fast cutting to shorten the time per job, uniform enough to give a smoother finish. The husky combination backing is firm enough to keep the abrasive cutting smoothly and easily, yet flexible enough to protect the operator against shock and vibration. For complete information on Three-M-ite Fibre Combination Discs and other time saving 3-M Abrasives, fill in and return the coupon below.



**MINNESOTA
MINING AND
MANUFACTURING CO.**

GENERAL OFFICES SAINT PAUL 6, MINN.
BRANCHES IN PRINCIPAL CITIES

Minnesota Mining & Manufacturing Company
900 Fauquier Avenue, Saint Paul 6, Minnesota

P1144D

Please send us a free copy of your booklet, "3-M Abrasive Specialty Items That Aid in Speeding Production."

Name _____

Firm _____

Address _____ City _____ Zone _____ State _____

-----BUY MORE WAR BONDS!-----

(Continued from page 154)

of wartime research and experience, according to J. Louis Reynolds, vice president of the Reynolds Metals Company. Among other things, the Reynolds Company has perfected a laminated foil which as a packaging material is said to afford almost as much protection as a solid metal, yet weighs and costs much less than the latter. The company also has worked out a heat-sealing process so efficient that packages and envelopes made of foil become air-tight compartments that afford maximum protection against moisture, evaporation, odors and light. Reynolds engineers say that a partial vacuum may be drawn in the cigarette package of the future. The company also has developed a method for printing bright aluminum foil.

1 1 1

SELF-DUMPING HOPPER

Self-dumping hopper developed by the Yale & Towne Mfg. Co., Philadelphia 24, Pa., is an all metal skid bin with a hinged bottom, which can easily be picked up and moved by hand-lift truck, though the dumping operation can only be ac-



Handles Wide Variety of Materials

complished when the hopper is employed in conjunction with an electric fork truck. Dumping is done by elevating the hopper by means of the truck forks until the bin handle engages with a positive-action catch at the top of the truck elevating column. The forks are then lowered leaving the hopper suspended. The unsupported hinged bottom opens, allowing the contents to pour forth. The combination of self-dumping hopper and electric fork truck is proving valuable in handling a wide variety of materials.

1 1 1

"TECHNIC" OF MOLDING PLASTICS

"Molding Technic" for Bakelite and Vinylite Plastics" authoritative text on plastics molding published by Bakelite Corp. formerly priced at \$3.50, is now available at \$1.50. This 224-page illustrated handbook discusses important phases of commercial molding processes and equipment. It contains comprehensive data for designer, engineer, molder and user concerning fabrication and design of hot-set and cold-set molding materials. Special chapters on cost accounting, molding plant layout, and nomenclature are of special interest. Checks accompanying orders should be made payable to Bakelite Corp., 300 Madison Ave., New York, N. Y.

AN IMPERIAL
DATA SHEET**Basic Data**
ON TUBING
CONNECTIONS

NO.

4**HI-DUTY
FITTINGS****HOW TO RECOGNIZE**

Body has female thread with seat for tube and fairly long bellings beyond threading. Sleeve is attached to nut, making this a two-piece fitting. Sleeve shears off at groove during assembly, becoming permanent part of tube.

HOW TO ASSEMBLE

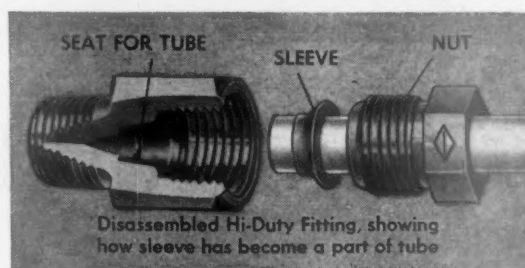
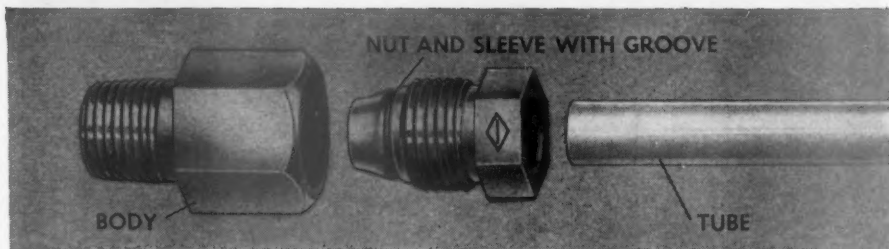
No special preparation of tubing necessary. Since fitting comes with nut assembled, it is only necessary to insert tubing through nut into fitting body so that it bottoms squarely against seat inside body. Then tighten nut.

**FOR USE WITH THE
FOLLOWING TYPES OF TUBING**

Copper, brass, aluminum, block tin, monel, everdur, seamless steel, tinned Bundy and similar tubing.

APPLICATIONS

Used for gasoline, oil, grease, vacuum and air lines and for general purpose medium pressure work. Widely selected for applications where there is minor vibration and where fittings must stand up under severe service. Extensively used on tractors, trucks, power units, diesel locomotives, machinery, etc.

**ADVANTAGES**

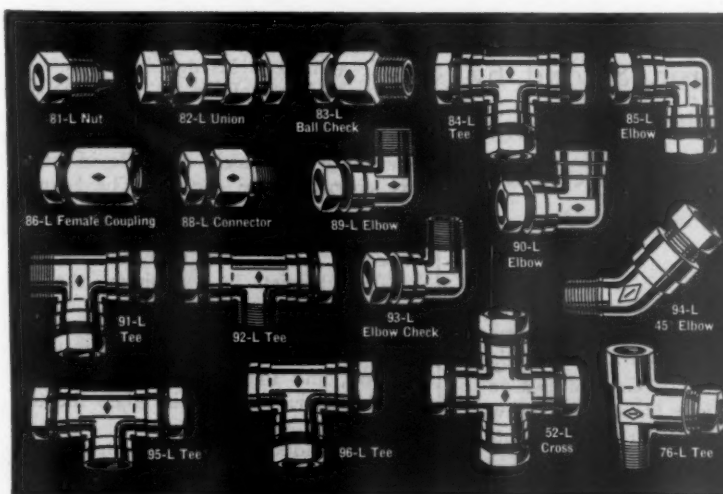
Excellent for applications where there is minor vibration. (On vibration tests, joints made with Hi-Duty Fittings have stood up without failure an average of 8 times as long as joints made with ordinary compression or flare fittings.) Reduces installation time. Joints speedily assembled; no flaring or other special preparation of tubing necessary.

A 2-piece fitting which offers all the construction advantages of a 3-piece fitting because sleeve shears off in assembly and becomes a permanent part of tubing.

STOCK SIZES

Hi-Duty Fittings usually are made for $\frac{1}{8}$ " to $\frac{3}{4}$ " O.D. tubing. Sizes of Imperial Hi-Duty Fittings ordinarily carried in stock are indicated in the table below by dots and squares.*

THE IMPERIAL BRASS MANUFACTURING CO., 512 So. Racine Avenue, Chicago 7, Illinois

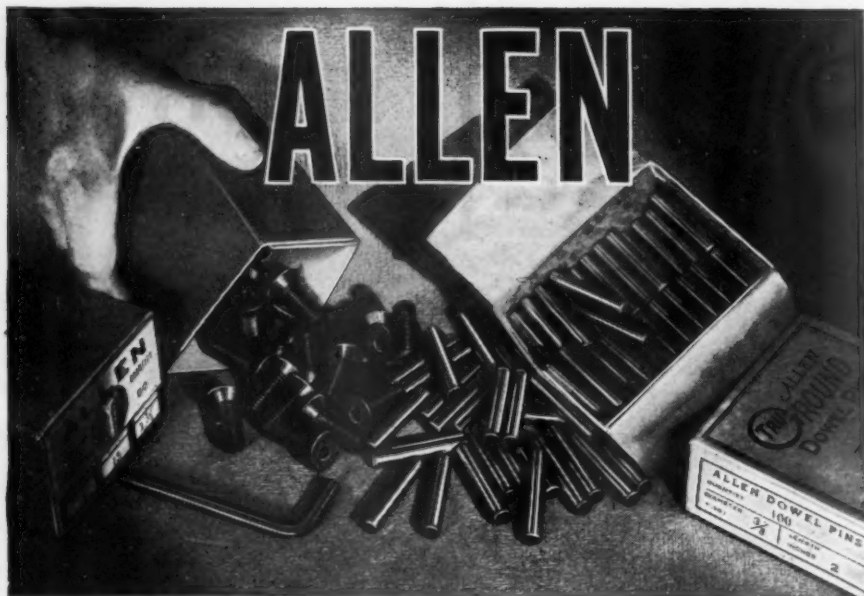


O.D. Tube Size→ by I.P.T. Size→	1/8 In.	3/16 In.	1/4 In.	1/4 In.	5/16 In.	5/16 In.	3/8 In.	3/8 In.	7/16 In.	1/2 In.	5/8 In.	3/4 In.
81-L Nut	•	•	•	•	•	•	•	•	•	•	•	•
82-L Union	•	•	•	•	•	•	•	•	•	•	•	•
83-L Ball Check	•	•	•	•	•	•	•	•	•	•	•	•
84-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
85-L Elbow	•	•	•	•	•	•	•	•	•	•	•	•
86-L Female Coupling	•	•	•	•	•	•	•	•	•	•	•	•
88-L Connector	•	•	•	•	•	•	•	•	•	•	•	•
89-L Elbow	•	•	•	•	•	•	•	•	•	•	•	•
90-L Elbow	•	•	•	•	•	•	•	•	•	•	•	•
91-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
92-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
93-L Elbow Check	•	•	•	•	•	•	•	•	•	•	•	•
94-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
95-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
96-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
97-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
98-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
99-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
100-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
101-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
102-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
103-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
104-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
105-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
106-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
107-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
108-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
109-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
110-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
111-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
112-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
113-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
114-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
115-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
116-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
117-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
118-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
119-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
120-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
121-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
122-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
123-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
124-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
125-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
126-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
127-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
128-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
129-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
130-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
131-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
132-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
133-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
134-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
135-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
136-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
137-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
138-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
139-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
140-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
141-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
142-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
143-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
144-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
145-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
146-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
147-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
148-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
149-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
150-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
151-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
152-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
153-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
154-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
155-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
156-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
157-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
158-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
159-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
160-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
161-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
162-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
163-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
164-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
165-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
166-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
167-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
168-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
169-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
170-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
171-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
172-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
173-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
174-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
175-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
176-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
177-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
178-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
179-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
180-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
181-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
182-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
183-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
184-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
185-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
186-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
187-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
188-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
189-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
190-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
191-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
192-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
193-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
194-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
195-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
196-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
197-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
198-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
199-L Tee	•	•	•	•	•	•	•	•	•	•	•	•
200-L Tee	•	•	•	•	•	•	•	•	•	•	•	•

*• Fitting has tubing connections only.

■ Fitting has both tubing and pipe thread connections.

IMPERIAL★ Headquarters for tube fittings
and tube working toolsReprints of this
page will be
sent on request

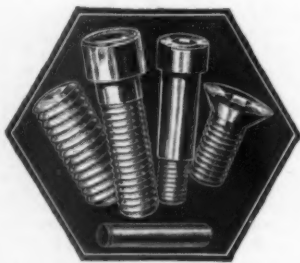


Proofs of Identity

Suppose you place an order for ALLEN Screws and "Tru-Ground" Dowel Pins with a local Industrial Distributor. He doesn't happen to be an ALLEN Distributor. He fills your order with Allen-type screws — and the dowel pins *look* like "Allens". But you discover a difference in tensile strength, a difference in tolerances, in HOLDING-POWER.

Query: How can you get the exact qualities you want in hex socket screws and in dowel pins? First, by identifying your supplier as an ALLEN Distributor. Second, by identifying the Allen package. If your "Allens" be identified by *name*, then and only then can you expect them to *live up to their name!*

Your supply-source is your nearest ALLEN Distributor, — Master Expediter of orders. He stocks for your all-round convenience a full line of Allen Hollow Screws and Die-makers' Accessories.



The line consists of ALLEN Hollow Set Screws, "Pressur-formed" Socket Head Cap Screws and Flat Head Cap Screws, "Tru-Ground" Shoulder Screws, Square Head Set Screws, Pipe Plugs, "Tru-Ground" Dowel Pins, Tap Extensions.

THE ALLEN MANUFACTURING COMPANY
HARTFORD, ★ ALLEN ★ CONNECTICUT, U.S.A.

REVERSE REACTION OIL

A new type lubricating oil which thickens when heated and thins when cooled has been developed in the Richmond, California laboratories of the California Research Corporation, a Standard of California subsidiary.

Until now, oils behaved exactly the opposite—they always thinned out with heat and became thicker when chilled. And they frequently solidified at temperatures even above zero.

Although the new oil is still a laboratory curiosity and is not available for commercial distribution, it may some day help solve the problem of lubricating equipment that has to operate through wide temperature ranges.

Aircraft, for instance, often encounter extreme heat and extreme cold within a few minutes. Bombers may take off from a North African air base where the thermometer reads 120 degrees and zoom to altitude of 30,000 feet into a paralyzing temperature of 75 below.

Lubrication of moving parts, such as bomb bay doors, retractable landing gear, camera equipment, etc., is a serious problem throughout such a 195 degree range between ground temperature and temperature aloft. An oil which behaves well at 120 degrees may freeze solid at 75 below and prevent opening of bomb bay doors. Likewise, oil which gives good cold weather performance may be too thin to protect frictional surfaces at desert floor temperatures.

Essentially the same problem is found in lubrication of railroad journal bearings on trains passing from high mountain blizzards into desert heat.

Unlike the trial-and-error method ordinarily responsible for scientific progress, the new oil was first developed as a theory on paper. A research chemist ventured something which, he said, other researchers had "carefully avoided as undesirable." He put something into the oil which remained as a suspension and would not dissolve thoroughly at ordinary temperatures.

He arrived at his decision while reading a book containing an Einstein equation and a Staudinger equation. The Einstein equation said mathematically that a substance suspended in a liquid affects its viscosity only slightly. The Staudinger equation said that giant chain-like molecules dissolved in a liquid change the viscosity of the liquid tremendously.

The chemist, by combining the two equations, proved that properly selected high viscosity material added to the oil would dissolve when heated and thicken the oil, and that the dissolved material would separate out again when the temperature dropped.

These added substances are mostly resins, thousands of times as viscous as the oil itself. However, they are very finely divided particles, each of which is composed of only a few thousand molecules.

At ordinary temperatures these particles remain suspended in the oil and do not affect its viscosity. But when the oil becomes heated the particles gradually break up—the higher the temperature,

(Continued on page 162)

WASTED MOVES *Waste Men*



A GLEAM in your opponent's eye . . . a lightning series of jumps . . . and your last man is swept from the board. Wasted men are the penalty for wasted moves.

Perhaps you, too, are learning about wasted moves the *hard way—from the cost sheets of your plant*. How much greater the penalty there . . . the cost in time and the cost in men!

Naturally, modern production demands a lot of moving. You can't get away from it. But you *can* avoid the repetitive loading and unloading which run costs sky high.

With Barrett Lift-trucks and Skids, your material need be stacked just once . . . then it's done. When it moves, it moves as *unit loads*, not in dribblets.

Let a Barrett engineer show you how to stop wasted moves. Learn from him how one man with Barrett Lift-trucks and Skids can outwork 3 or 4 without them.

BARRETT-CRAVENS COMPANY

3280 West 30th St. • Chicago 23, Illinois

Representatives in All Principal Cities

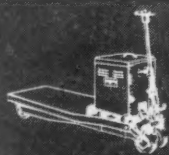
Canadian Licensee: S. A. Armstrong, Ltd. • Toronto, Canada

Don't miss the Barrett Junior Catalog. A free copy is yours for the asking.



BARRETT

ONE MAN DOES MORE THAN 3 OR 4 . . . WITH A BARRETT LIFT-TRUCK



ELECTRIC LIFT-TRUCKS



HAND LIFT-TRUCKS



SKIDS



BARREL TRUCKS



NIFTY SYSTEMS



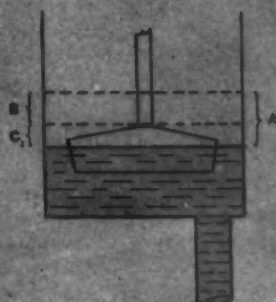
PORTABLE ELEVATORS



STEEL STORAGE RACKS

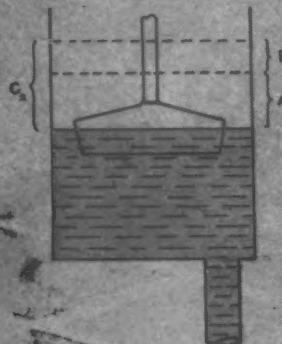
METER-MAKING STRATEGY LICKS TEMPERATURE ERRORS!

FIGURE I — FLOAT IN HIGH-PRESSURE CHAMBER



A — EXPANSION ERROR
B — DENSITY ERROR
C — TOTAL OR NET ERROR

FIGURE II — FLOAT IN LOW-PRESSURE CHAMBER



Any temperature change tends to cause two inherent errors in differential meters. One is due to volumetric change in the mercury; the other, to density change. Figure I shows how Foxboro minimizes temperature error by placing the float in the high-pressure chamber. Expansion error A is practically cancelled by density error B, leaving only negligible net error C. Figure II shows what happens with float in the low-pressure chamber. A and B are additive, producing combined error C.

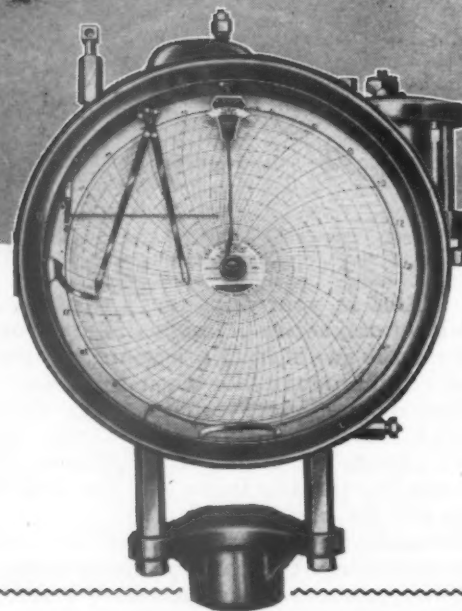
Foxboro Engineering disproves practice of locating float in low-pressure chamber

Every detail of a Foxboro Flow Meter illustrates why you get "more meter for your money" when you buy a unit that is systematically engineered, instead of put together on a basis of fixed habit.

Foxboro's "strategy" of locating the meter float in the high-pressure chamber, rather than the low-pressure, is one of many typical examples. Based on broader understanding of basic principles, this simple design feature utilizes two inherent sources of thermal error to offset each other. The result is sustained accuracy throughout the range, winter and summer alike!

Even for your simple installations, it costs no more to get Foxboro Meters built with such exacting refinements throughout! Write for complete Bulletin 200-6. The Foxboro Company, 178 Neponset Ave., Foxboro, Mass., U. S. A.

Visit Foxboro Booth No. 613 at the Power Show



EXCLUSIVE FOXBORO REFINEMENTS

- Segmental Lever Transmission gives straight-line calibration.
- Extra-large Float with long travel for extra power.
- Sure-Seal Check Valves positively prevent mercury losses.
- Pressure-Tite Bearing eliminates stuffing box and packing.

FOXBORO

REG. U. S. PAT. OFF.

DIFFERENTIAL-TYPE FLOW METERS

Highballing along!



THERE'S SPEED AND SAFETY IN PENN SALT CAUSTIC SODA CARS

Special 8000 gallon tank cars speed Penn Salt Caustic Soda safely to its destination. These insulated units have protective lining, are equipped with special draining plates, caustic resisting valves and interior connections. They are your guarantee of fluid Caustic Soda in any weather, contamination-free because the steam heating coils do not contact the caustic.

Furthermore they empty rapidly and safely. No loss of time, no loss of effort, no loss of Caustic Soda.

Available as 50% and 72-73% solution in liquid form in tank cars. In 750 lb. drums in solid form. In 125 and 400 lb. drums in flake form. Consult our technical staff, without obligation, for aid in handling problems. For further information about Penn Salt Caustic Soda, write us.

PENNSYLVANIA SALT
MANUFACTURING COMPANY
Chemicals

1000 WIDENER BUILDING, PHILADELPHIA 7, PA.

New York • Chicago • St. Louis • Pittsburgh • Cincinnati • Minneapolis • Wyandotte • Tacoma

SOME OF THE PRODUCTS MANUFACTURED BY PENN SALT:

ACIDS, Sulphuric, Muriatic, Mixed Acids, Hydrofluoric, Hydrofluosilicic, Nitric • AMMONIA • ALUM, Sulfate of Alumina • HYDRATE OF ALUMINA • BLEACHING POWDER • AMMONIA, Anhydrous and Aqua • CARBON BISULPHIDE • CARBON TETRACHLORIDE • CAUSTIC SODA • CORROSION-RESISTING CEMENTS • LIQUID CHLORINE • FERRIC CHLORIDE • FLUORIDES AND FLUOSILICATES • HYDROGEN PEROXIDE • *KRYOLITH Flux and Opacifier • *KRYOCIDE Insecticide • ORTHOSIL AND *PENN SALT METAL CLEANERS • SAL AMMONIAC • SODIUM ALUMINATE.

*Trade-marks Reg. U. S. Pat. Off.





Easy-acting **STANLEY STRAPPING TOOLS** release men for heavier work

Here's a job in the packing or shipping department that a woman can do as well as a man . . . if she has easy-acting Stanley Strapping Tools.

These tools are designed to apply Steel Strapping easily, quickly, and permanently. They are precision built for long, active service. The entire line of reels, stands and other accessories is built to fill the need of today's fast shipping schedules. The Steel Strapping, itself, is manufactured from Stanley Steel carefully processed to rigid specifications.

For thousands of manufacturers, Stanley Steel Strapping and Car Banding Systems are providing extra protection for shipments . . . at minimum cost. Check on its advantages for your shipments.



THE STANLEY WORKS **STANLEY**

Steel Strapping Division . . . New Britain, Conn.

(Continued from page 158)

the greater the breakage, until finally they are reduced approximately to molecule size.

In that state they form a solution with the oil and contribute greatly to its viscosity. When the oil cools the molecules clump together again and become particles suspended in the lubricant, and the oil returns to its former low-viscosity state.

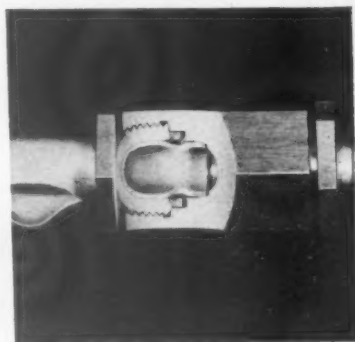
Laboratory experiments also proved that, by combining the two equations in various degrees, and selecting the proper ingredients the viscosity of the final lubricating oil can be tailored to behave in almost any desired manner.

The oil can even be made to ignore temperature change and remain at the same viscosity throughout great increases or decreases in temperatures.

1 1 1

HYDRAULIC CONNECTION ELIMINATES TUBE FLARING

Hydraulic tube connection which eliminates the tube flaring operation required with previous fittings, thus providing greater resistance to vibration breakage while simplifying installation procedures both in the shop and in the field, has been developed by The Glenn



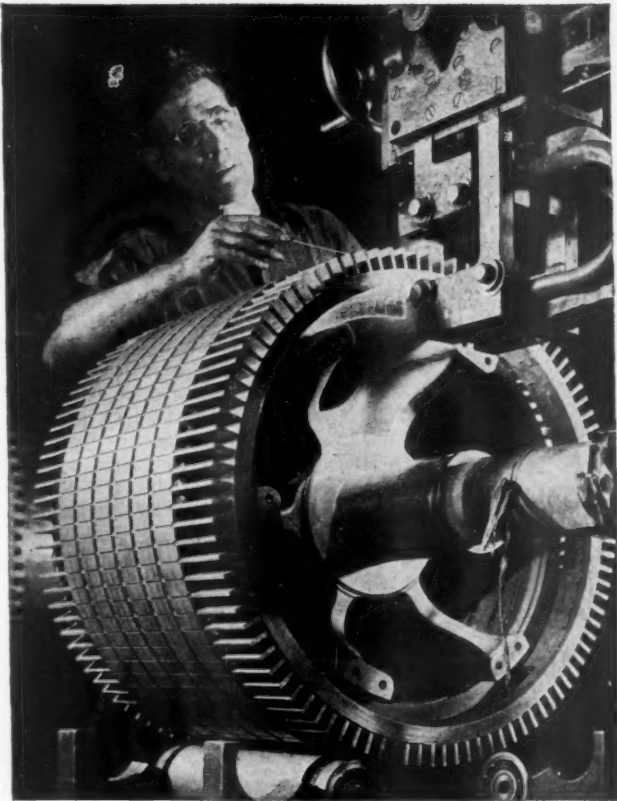
Connected with Martin hydraulic fitting this piece of $\frac{3}{8}$ dia. by .049 wall aluminum tube burst under a 5,000 p.s.i. pressure, but fitting and joint were unaffected. Cut away portion shows principle of the new fitting.

L. Martin Co., Baltimore, Md. The fitting provides a firm leakproof joint and can be used with both low and high pressures. Basic parts consist of the fitting, a gland nut, a small metal collar and a synthetic rubber sealing ring. To install the fitting, one simply places the gland nut, metal collar and rubber ring over the end of the tube in that order and inserts the tube in the gland as far as it will go. By turning the gland nut force is exerted on the rubber ring with the metal serving to keep the nut from tearing the ring. Since the sealing ring is completely confined, and rubber is not compressible, the axial thrust so developed grips the tube and actually beads it. At the same time the rubber is forced into every crevice to form a perfect seal and exerts an outward force on the gland nut, locking the threads. The beading operation is foolproof in that after the proper

(Continued on page 164)

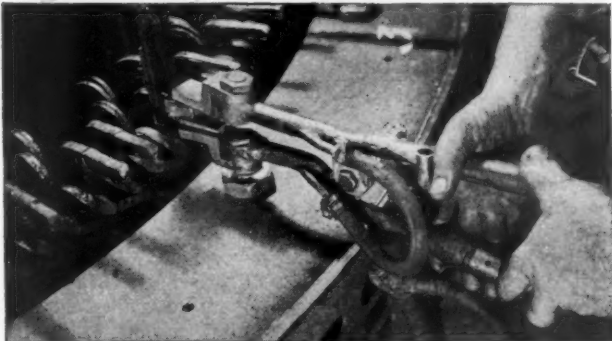
LOOK

WHAT YOU CAN SAVE WITH FREE-FLOWING *Phos-Copper brazing alloy...*



Brazing an electric motor rotor with Phos-Copper. This free-flowing brazing alloy produces joints of high electrical conductivity and corrosion resistance, and is stronger than 20% silver solder.

Brazing generator rotor with Phos-Copper in a British plant. No jig is needed in tong brazing, and joints are heated and cooled under pressure, insuring strongest joints with lowest amounts of brazing alloy.



Phos-Copper brazing makes possible new economies in manufacturing, maintenance and installation work. It has a wide range of applications in every industry, replacing expensive machining or silver soldering. Look what you can save by using this strong, free-flowing brazing alloy...

SAVE man power and machines...

Phos-Copper eliminates pre-tinning and finishing joints. No complicated jigs or fixtures are needed for most Phos-Copper brazing, and machining is not necessary. One manufacturer saved 1520 man-hours on a 2400 motor-contract and freed machine tools for other work by switching from a sluggish brazing alloy to Phos-Copper, which flows freely at 1382° F.

SAVE critical materials...

Phos-Copper saves critically scarce tin by replacing soldering and doing a better job at lower cost. A motor manufacturer saved 3750 pounds of tin on one contract by switching from soldering to Phos-Copper brazing for joining complete stator leads... and the cost was less than 25% of the solder previously used.

SAVE money...

Phos-Copper is low in cost and requires no flux on ordinary copper brazing. Its exceptional fluidity enables it to penetrate joints rapidly... little or no finishing is required. It has saved thousands of dollars for manufacturers in replacing expensive silver solder and high temperature alloys.

PHOS-COPPER has many other advantages...

Phos-Copper offers many production advantages: uniformity, low flow point, excellent penetration, corrosion resistance and high electrical conductivity across the joint. Tests have shown Phos-Copper to have greater fatigue strength and vibration resistance than 20% silver solder.

All types of brazing techniques can be used with Phos-Copper... gas, incandescent carbon, electric furnace, salt or metal bath and induction heating. It is available in rod, ribbon or special shapes for immediate delivery. Ask your nearest Westinghouse office for complete information. Or write Westinghouse Electric & Manufacturing Co., P. O. Box 868, Pittsburgh 30, Pa.

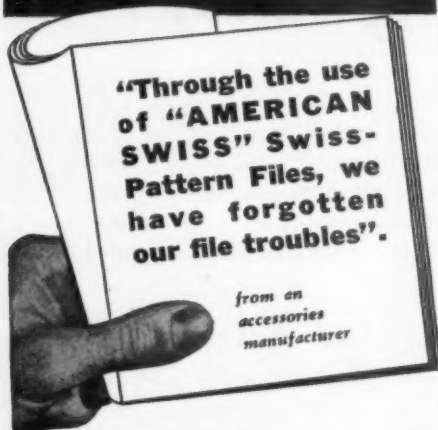
J-90543



Westinghouse
PLANTS IN 25 CITIES... OFFICES EVERYWHERE

Phos-Copper

FROM THE FILES OF "AMERICAN SWISS" FILE SERVICE



You, too, can eliminate file troubles . . . secure best results at least costs on your intricate and accurate filing work . . . by standardizing on "AMERICAN SWISS" Swiss-Pattern Files. The tough, strong metal . . . correct and uniform hardness . . . sharp, deeply cut teeth . . . long filing surface of these precision tools assure faster work, longer life, and lowest filing expense.

Furthermore, the large "AMERICAN SWISS" line assures an exactly suitable selection for each job, and each file is guaranteed to be perfect in every respect.



3000
Different Shapes
Cuts and Sizes

FREE CATALOG
SENT ON REQUEST

Buy from Our Distributor
AMERICAN SWISS FILE & TOOL CO.
ELIZABETH NEW JERSEY



ASK FOR THEM
BY THIS NAME

American Swiss

SWISS PATTERN FILES

(Continued from page 162)

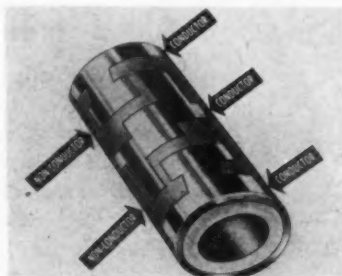
bead has been accomplished, the gland nut bottoms in the fittings and further crushing of the tube is impossible. On $\frac{3}{8}$ diameter by .049 wall aluminum alloy tube installations pressures as high as 5000 p.s.i. have been successfully withstood, while on $\frac{3}{8}$ by .035 tube the pressures have run up to 6,200 p.s.i.

1 1 1

COMMUTATORS UTILIZE METAL PLATING ON PLASTICS

Manufacture of intricately designed commutators using metal plating on plastics has been announced by the Metaplast Company, 205 West 19th Street, New York City.

It is possible to precisely mold various



Example of the intricate commutating surfaces which can be obtained by the use of the METAPLAST process.

and odd-shaped thermo-setting or thermoplastic commutators by molding-in or machining grooves and depressions wherever contact surfaces are desired. These grooves and depressed areas are then built up flush with the nonconductive surface by Metaplast silver or any other desired metal. The commutating surface is then ground mirror smooth, which affords a one-piece unit of conductor and non-conductor in any shape or type desired with practically any commutating contour at an enormous saving in time, labor and cost.

For instance, a flat commutator having 83 conducting segments .005 inches wide, and a like number of separators .012 inches wide, was previously made by stacking alternately small sheets of silver and bakelite on a threaded brass shaft, which was insulated with a bakelite bushing. It was, of course, necessary to clamp the whole assembly together, with a nut on each end of the shaft, and, in so doing, the clamping pressure eventually caused the plastic separators to cold flow above the commutating surface. Each segment had to be soldered to one of two circuits, a total of 83 soldered joints. In addition, the thickness tolerance on each piece of silver and bakelite caused the overall length of each commutator to vary as much as plus or minus $\frac{3}{32}$ inches, which necessitated a separate calibration chart for each instrument using the commutator.

In a redesign, the commutator was molded with .005 inch grooves for the conducting segments, and two wide grooves for the connections. Thus, after metaplasting and grinding the surface

smooth, the commutator is complete connections and all. No soldered connections means no trouble from them. In addition to this, the molded piece varies only plus or minus .005 inches in length, thus eliminating separate calibration charts for each instrument. Since there is no clamping pressure, the commutating surface remains smooth indefinitely. Moreover, the cost was cut approximately in half.

1 1 1

NEW DELTABESTON FLAMENOL LEAD WIRE ANNOUNCED

A new Deltabeston Flamenol thermoplastic insulated lead wire for use in all types of fluorescent lamp ballasts is announced by General Electric's appliance and merchandise department, Bridgeport, Conn. This new lead wire is approved by the Underwriters' Laboratories for use as lead wire in lighting fixtures wherever 600-volt service is required. It is approved for 176 deg. F.

The insulation of this new wire is superaging and is resistant to flame, oils, acids and alkalis. This wire is available in solid and stranded conductors, sizes 16 and 18 AWG in brilliant colors, including black, white, red and green.

Deltabeston Flamenol lead wire is mechanically strong and flexible. It will not rupture when bent and is free stripping, easy to splice and terminate.

1 1 1

BULKHEAD SEAL SAVES MANHOURS

Illustration shows installation of new type bulkhead seal developed by the Dresser Mfg. Co. of Bradford, Pa., for U. S. Army's FP (freight and passenger) boats, which is said to save many



Dresser Bulkhead Seal

manhours. The bulkhead seal is essentially a stuffing box gland. It consists of a few accurate, carefully engineered parts easily and speedily installed, using only regular equipment and an ordinary wrench. Metal parts are of steel. Gaskets are of rubber compound. The flexible gasket pipe grip permits free and independent movement of the pipe, and avoids the possibility of harmful stresses. The pipe is surrounded in the middle ring or sleeve of the bulkhead seal by the resilient wedge-section gaskets. Metal to

(Continued on page 166)



radio components exclusively

As before, our total facilities will be devoted exclusively to the production of variable air condensers, push-button tuning devices, record changers and other radio components.

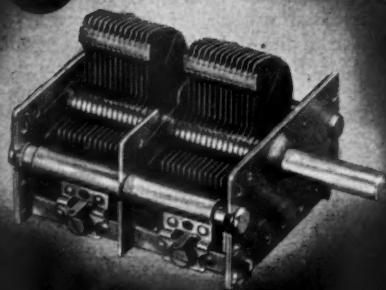
We will continue our established policy of producing a full line of types, sizes and specifications plus exclusive special designs.

GENERAL INSTRUMENT CORP.

829 NEWARK AVENUE, ELIZABETH 3, N. J.



variable air condensers



and push button tuning devices

record changers ...

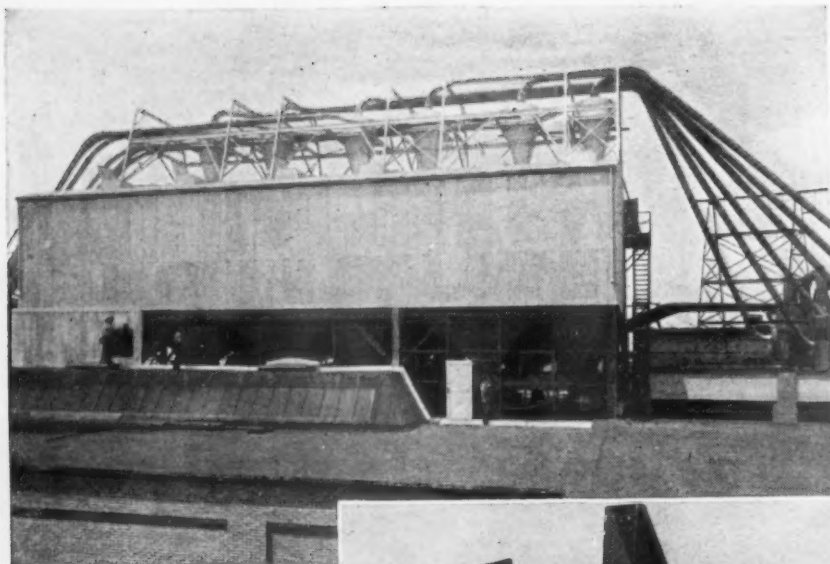


A line of new volume production models — simple — reliable — appealing.

NEW components? ...

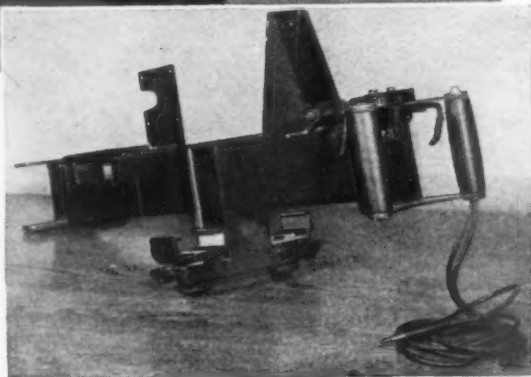


We're working on 'em now. Tell you later.



Cork Storage Bins—entire system, including structural supports and conveyor ducts, designed, fabricated, erected by Brandt.

Gun Adapter for synchronizing machine gun and aerial camera—built by Brandt for use on the famous Martin Marauders.



Design, Fabrication, Installation

Call BRANDT of Baltimore

For Precision in Heavy Plate and Sheet Steel Work

If you have a fabrication or design problem in your post-war plans, call on Brandt of Baltimore. For over 50 years Brandt has fabricated metal for scores of industrial uses. Present products range from small formed units to huge fabricated assemblies. Our engineers have assisted our clients in the design and specifications of many of their products.

The Brandt 8½-acre plant houses complete, modern equipment for shearing, rolling, forming, welding. Machine capacities range from the lightest gauge up to and including 1¼" mild steel or ¾" armor plate. All metals, ferrous, non-ferrous and alloys, can be completely fabricated to your specifications. Charles T. Brandt, Inc., Bush & Ridgely Streets, Baltimore 30, Maryland.



BRANDT of Baltimore • Craftsmen in Metal Since 1890

(Continued from page 164)

metal contact and the transmission of vibration are thus greatly minimized. The seals are used on bilge and ballast lines for salt water, on deck penetrations for hot and cold fresh water piping, and are suitable for use with oil or other fluids, and for use on steam up to 100 pounds per square inch.

1 1 1

SPIRAL STAIRS WELDED TO PIPE

Only a fraction of the space normally required is used in these arc welded circular stairways that are being fabricated and erected in many war plants where space is at a premium, according to Hobart Bros. Co., Troy, N. Y.

This convenient passageway from floor



Arc Welded Circular Stairway
Anchored to Center Pipe

to floor can be installed in only a six foot, six inch space by cutting a hole in the ceiling, anchoring a 6 inch pipe in the center and welding the one-piece steps and riser to the pipe. The steps and risers are formed from a single pattern of ⅝" plate, welded to the pipe and each riser is welded to the next step above.

For safety and additional reinforcing, a 16 page band is welded to the outside of the steps and scrap pieces of iron pipe are welded to uprights for hand rail.

1 1 1

RUST PREVENTIVES

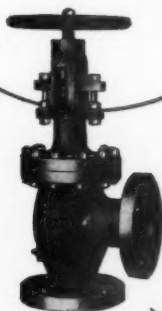
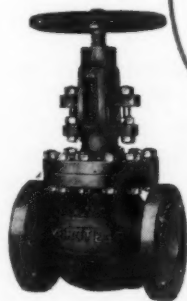
Two types of rust preventives have been released by the Technical Processes Division of the Colonial Alloys Co., Philadelphia, Pa. Cyclo-diene and Percyclo-diene are metal cleaning solvents, leaving protective films that prevent rust and tarnish. Both are used as short time simple immersions at room temperature, and neither will attack metals, according to the manufacturer. The film from the former dries in 20 minutes, leaving rust inhibited surfaces for short time thereafter, while the film from the latter remains for about 30 days. A quick dip into either one of these rust inhibitive solvents prior to or between inspection and final operations will protect the work from rust and corrosion.



KEROTEST ENGINEERING AND RESEARCH ARE WORKING "ROUND-THE-CLOCK"

Planning and Perfecting PRECISION VALVES

with greater Economy and Reliability for your Postwar Needs



Kerotest engineers have burned a lot of "midnight oil" in the past four years—first, in finding ways and means of designing and building Valves for War, at a terrific production pace and in tremendous quantities. Then, adapting this war-learned skill to designing Valves for Peace that will set new standards of quality, dependability and economy.

Kerotest is ready now to meet your most difficult peacetime needs.



KEROTEST MANUFACTURING CO.
PITTSBURGH, PA.



TITAN Salutes...

The AUTOMOTIVE INDUSTRY

Originators of
MASS PRODUCTION

★ TITAN salutes the industry that put the world on wheels. The automotive industry turns out thousands of vehicles a month in peace-time—an industry that now produces an incredible number of planes, tanks, jeeps and trucks with those magic words, "mass production."

War brought a stupendous demand for military machines. The automobile industry converted assembly lines and production systems and used these procedures to manufacture that vitally needed equipment.


Mass production, originated and perfected by this industry, is undoubtedly one of the strongest weapons we possess in our war of supply.



Titan

METAL MANUFACTURING CO., BELLEFONTE, PA.
NEW YORK • CHICAGO • SAN FRANCISCO

Quality Alloys By Brass Specialists
Brass and Bronze Rod • Forgings • Die Castings • Welding Rods



TITAN supplies these assembly lines with hot pressed brass parts of various and intricate shapes, many faultlessly machined for immediate insertion in these machines of war. Call on us after this war is won. We can then supply you with superior hot pressed parts.

RUBBER CONSTRUCTION APPLIED TO METAL SLIDE FASTENERS

Development of rubber construction applied to metal slide fasteners which makes them completely waterproof and prevents escape of air or gases, is announced by B. F. Goodrich Co., Akron, Ohio. It is known as the Pressure Sealing Zipper.

The construction is of overlapping



Waterproof Metal Slide Fastener

rubber lips which have such initial pressures built into them that they assure a perfect seal against any pressure which the structural strength of the slide fastener will withstand. Three pressure seal zipper styles are being manufactured, two being of the non-separating type, the first sealing along its entire length but open at the top; the second sealing along its entire length and at both ends. In the first, the slider is operated from either or both sides. The third construction is of the separating type which seals for the entire length but not at the ends, with the slider operating from either or both sides.

The Pressure Sealing Zipper can be applied to metal, fabric, or sheet rubber. Installation can be accomplished either by stitching or cementing, depending on the application. The pressure seals are said to be effective in a wide temperature range, not cracking when bent at -70 degrees Fahrenheit nor becoming soft at 150 degrees Fahrenheit. The company states that tests on suits equipped with Pressure Sealing Zippers have shown them to be completely waterproof when immersed for long periods, and to hold water, air, or gases without any perceptible escape.

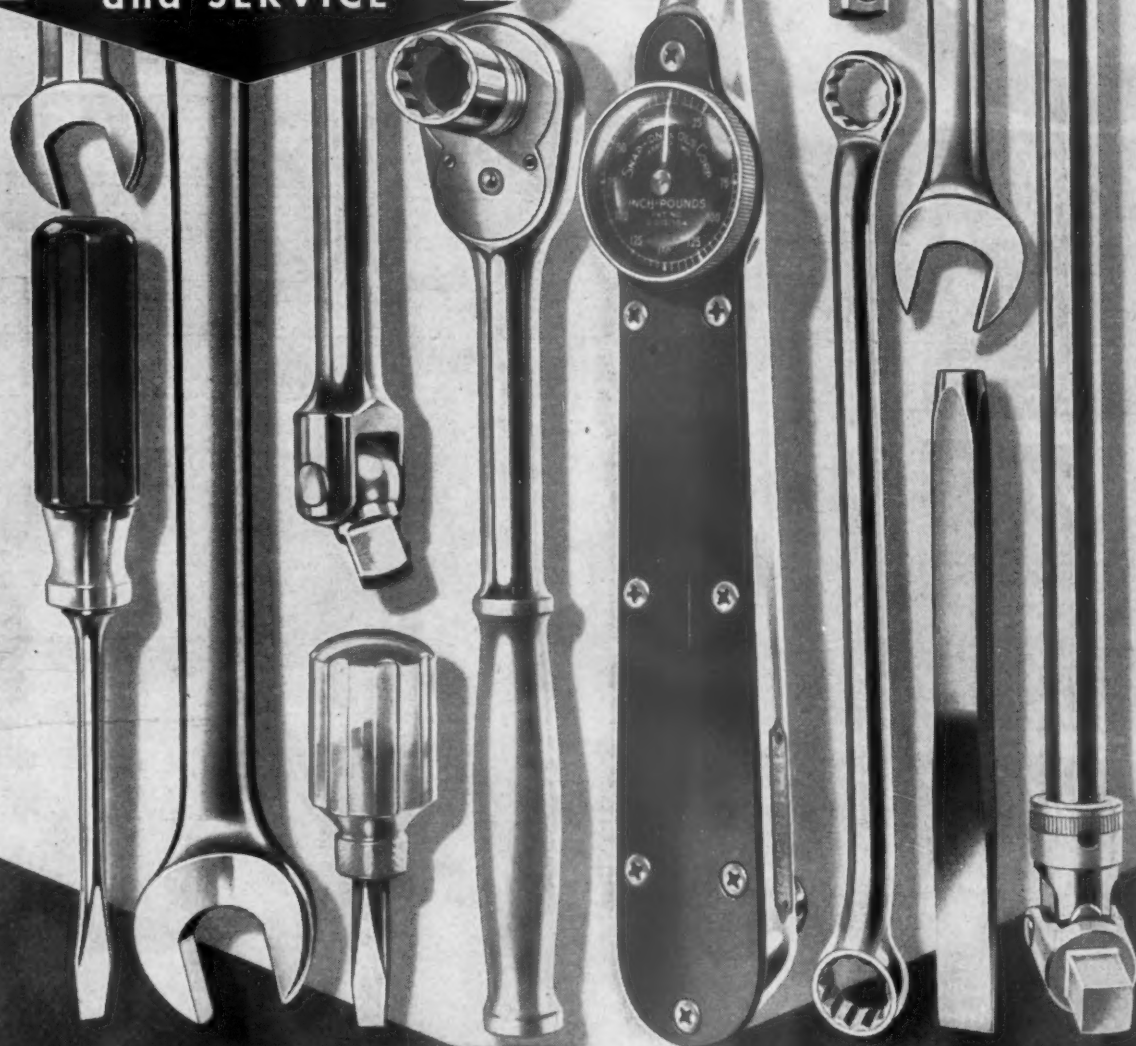
HOW "HOT WORKING" IMPROVES QUALITY OF STEEL

How "hot working" improves quality of metal is described and illustrated in a 40-page booklet issued by the technical committee of the Drop Forging Association, 605 Hanna Building, Cleveland, Ohio. First dealing broadly with characteristics of forging materials, the booklet features steel, and in a not-too-technical language and also by means of more than 200 halftones and diagrams gives a clear understanding of how this metal gains in strength and toughness step by step progressively through hot-working operations from ingot to finished forging. The hot-working of steel begins with

(Continued on page 172)

Snap-on Tools

for
PRODUCTION
MAINTENANCE
and SERVICE



The Right Tool for every job means faster work and better workmanship, lowered costs and increased safety. Everywhere in industry Snap-on tools are giving added efficiency to manpower in production, maintenance and service operations. In hundreds of foremost plants they are "standard equipment" for every hand tool operation. Snap-on's direct-to-user tool service is available through 38 factory branches located in key production centers.

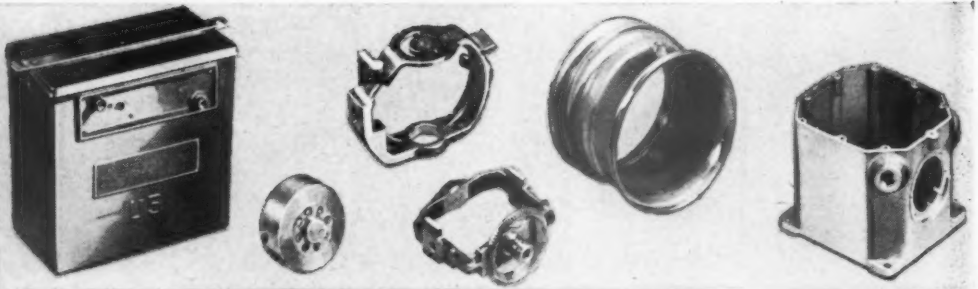
Snap-on Tools
THE CHOICE OF BETTER MECHANICS

SNAP-ON TOOLS CORPORATION, 8048-K 28th Avenue, Kenosha, Wisconsin

8 ways

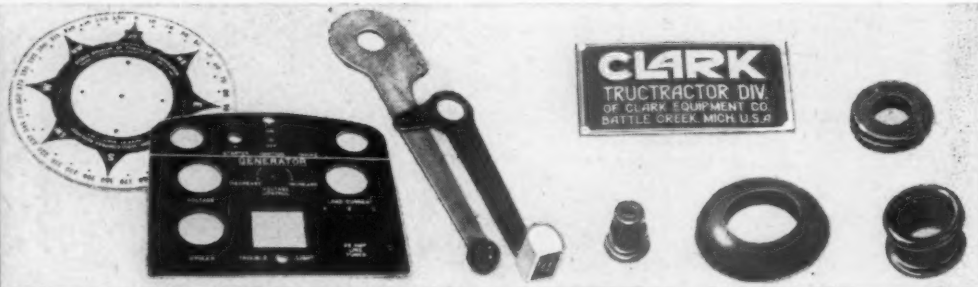
Die Castings

Manufacturing facilities are modern and exceptionally complete. They include trimming, precision machining, plating, painting, cranking and anodizing.



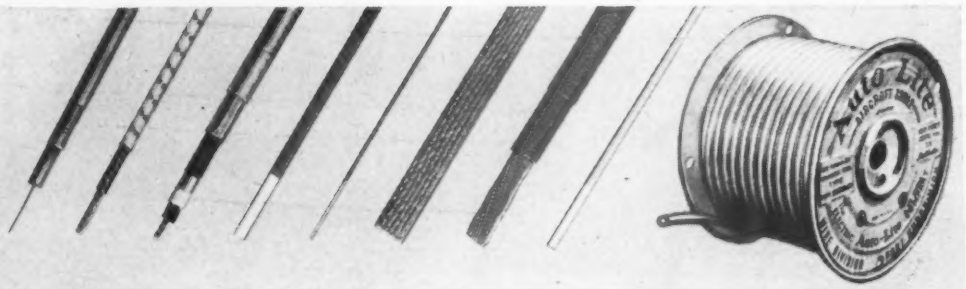
Plastics

All-plastic products, metals and plastic-metal combinations with various types of ornamentation are produced entirely under one roof at the Bay Division.



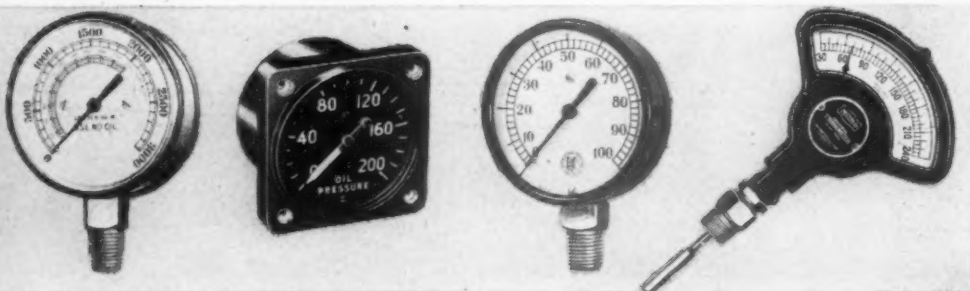
Wire and Cable

Wire and cable is available in a full range of sizes, shapes, materials and insulations including heat-resisting Vega Chromoxide enamel and other special types.



Instruments

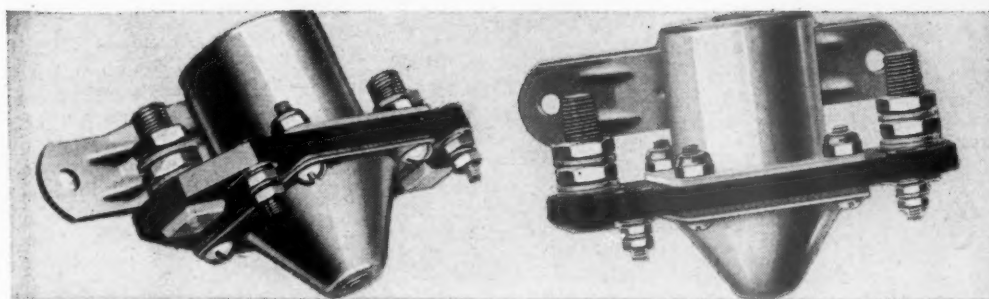
A wide range of pressure gauges, tachometers, thermometers and speedometers, etc., is available from Auto-Lite for industrial, aviation and automotive use.



AUTO-LITE

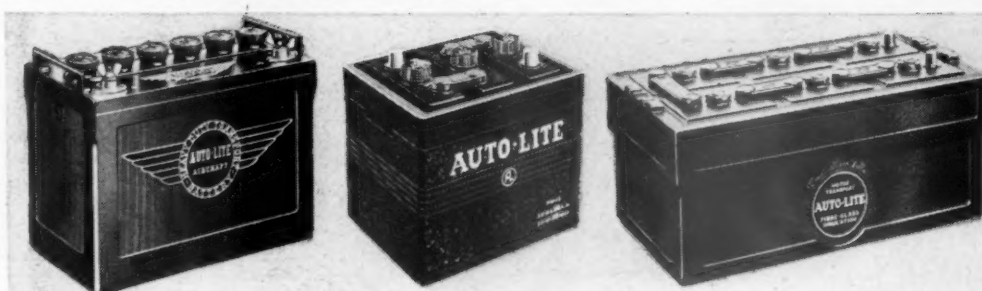
AUTO-LITE

can serve you



Aircraft Relays

Auto-Lite relays and switches are made for intermittent or continuous duty. In developing them, Auto-Lite combines the features of long life and low price.



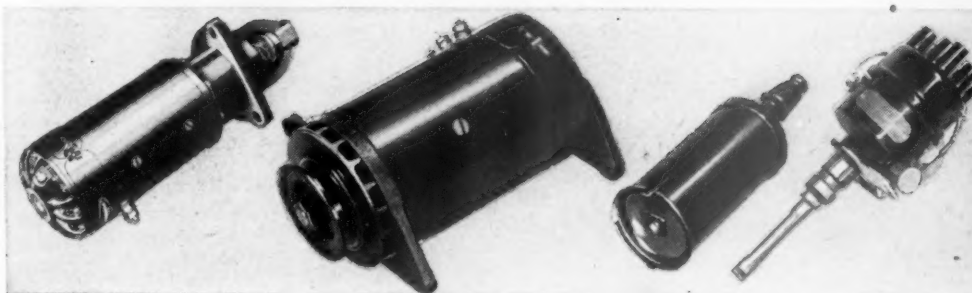
Batteries

Auto-Lite batteries are built in every type and size to fit various models of passenger cars, trucks, buses, stationary engines as well as aircraft.



Spark Plugs

Auto-Lite spark plugs are designed for use in automobiles, trucks, buses and aircraft and are engineered to work in harmony with the complete ignition system.



Electrical Parts

For thirty-three years Auto-Lite has been producing precision-built starters, generators, distributors and coils which are specified by many leading manufacturers.

Tune in "Everything for the Boys" Starring Dick Haymes—Every Tuesday Night—NBC Network

The products shown here are applicable to many industries. Address your inquiries about any of them to:
THE ELECTRIC AUTO-LITE COMPANY, Toledo 1, Ohio . . . New Center Bldg., Detroit 2, Michigan—
 Tower Petroleum Bldg., Dallas 1, Texas—Chrysler Bldg., New York 17, N. Y.—1016-17 Halliburton Bldg., Los
 Angeles 14, Calif.—600 S. Michigan Ave., Chicago 5, Illinois—12 Richmond St., E., Toronto 1, Ontario—Canada.



Absorbs and Washes
LIKE A SPONGE
Cleans, Dries and Polishes
LIKE A CHAMOIS



*No Other Cloth
Like It!*

**Use WET
DAMP or DRY**

"Duet" can be used wherever a Sponge is used because of the amazing amount of water it holds. When wrung out tightly it can be used like a Chamois, for cleaning, drying and polishing. There is no other cloth even similar to "Duet". IT CAN-NOT UNRAVEL. A hidden stitch locks each and every thread through a secret process. The result is a dense surface that is extremely long wearing.

Ideal for heavy duty in industry. It is a great labor saver and consequently a money saver as well!

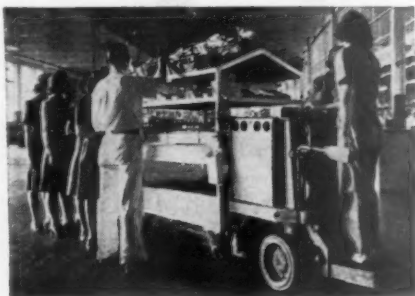


ANOTHER PRODUCT OF
AMERICAN SPONGE & CHAMOIS CO., Inc.
 47 ANN STREET, NEW YORK 7
 245 MISSION STREET, SAN FRANCISCO 5
 Producers of
AMSCO CHAMOIS and MERMAID SPONGES

(Continued from page 168)
 the ingot generally 20" x 18 3/4" in cross section which undergoes no less than 19 passes through the rolls to be reduced to a 4 x 4 inch billet. The billet goes through the rolls 10 times to be reduced to the size of an average forging bar—in all about 20 passes. Photos show how the grain structure has been refined and flow-lines developed in the direction of working. From this point the booklet shows how "forging quality" steel is still further improved by hot working in forging operations. Illustrations and descriptions of many recently designed forged parts valuable in the war effort are shown.

USE INDUSTRIAL TRUCK TO HAUL BETWEEN MEAL "PICK-UPS"

A particularly efficient system for delivering beverages and other light refreshments to about 2000 employees during working hours is one of the practical features that has been developed by Hanes Hosiery Mills, Inc., Winston-Salem, North Carolina, in furthering their policy of maintaining a high level of working conditions. Officials of the company decided that a between meal pick-



The power industrial truck brings welcome refreshment to the workers with minimum loss of time.

up in the nature of a soft drink, candy bar or sandwich would be beneficial to employees and help to eliminate fatigue. They hit upon the idea of mobile trucks which could be taken to each department to serve each group of operators in that department.

The plant layout comprises a system of long aisles, some departments being as remote as 1400 feet from the Commissary Supply. For the most satisfactory results it was desirable that the refreshments must be accessible to the greatest number of individuals, to avoid undue absence from machines. It was also desirable to arrange this service at definite periods.

Hanes executives met these conditions by providing double-deck buggies containing deep-icing receptacles for keeping beverages cold and trays for sandwiches and pastries. These buggies are stocked at the Commissary, picked up by an Elwell-Parker power industrial truck and transported at high speed to designated positions throughout the large buildings. Deliveries of refreshments are

made twice in the morning, three times through the afternoon and twice during the night. To reach all floors in the plant, the truck travels on large freight elevators.

Schedules are arranged so that employees in all departments can be served within approximately the same period and with a minimum of lost time from their posts. "The plan has worked well," states R. B. Crawford, Jr., vice-president of the company, "And we believe that our commissary-on-wheels has added much to the health and well-being of our employees."

SPRING GRADE BERYLLIUM COPPER WIRE

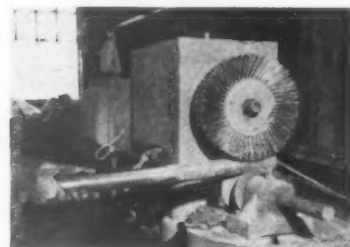
Silvercote is the tradename of a beryllium copper wire made by the Little Falls Alloys, Inc., 189 Caldwell Avenue, Paterson, N. J. It has a guaranteed tensile strength after heat-treatment of 190,000 pounds per square inch. The special process developed by the company to produce this Spring Grade beryllium copper wire includes a silver coating which is said to reduce wear on coiling tools, increase surface electrical conductivity, and reduce surface attack during hardening.

WIRE BRUSH PIPE RECLAIMING

One of the oldest and simplest power brushing operations, that of metal cleaning by wire brushing wheels, has become increasingly important during recent months due to its widespread application in reclaiming old, rusty, discarded pipe, according to brushing engineers of The Osborn Manufacturing Company, Cleveland, Ohio.

Very little equipment is needed for the process, the only essentials being a power driven spindle and wire brushing wheels of the proper size and gauge of wire.

Typical of such installations is the one



Wirebrush pipe cleaning, comparing cleaned section (left) with original rusted and corroded surface.

at The Builders Structural Steel Co., Cleveland, Ohio, where pipe in various sizes and lengths is power-brushed to a practically "good-as-new" finish for many kinds of industrial re-use.

Depending upon the size of pipe being cleaned, combinations of two, three, four or more wire brushing wheels with disc center are mounted on a spindle powered by a stationary electric motor. The wire wheels, of about 33-gauge wire, revolve at a speed of 1800 revolutions per minute. Pipe is inserted between a roller mounted

(Continued on page 176)



VALUABLE Equipment is worthy of ADEQUATE PROTECTION

This C-O-TWO wheeled type carbon-dioxide fire extinguisher plays an important part in industrial fire protection. Because of its easy mobility one man can operate it against sudden or flash fires which might cause serious damage and shut-downs by the usual extinguishing methods; fires are controlled in seconds, and there will be no damage to materials or machinery. C-O-TWO portables, hose units, smoke detecting and fire extinguishing systems have played an important part in the production of vital war materials and are used as standard fire protection on practically all transportation and combat equipment of the Armed Forces. C-O-TWO will definitely be basic fire protection in the post war period, and C-O-TWO equipment is available for industrial fire protection right now. Write for information.

Squeeze-Grip Saves Gas — Saves Time — Saves Lives —
It's Modern — It's Faster.

C-O-TWO FIRE EQUIPMENT COMPANY

NEWARK 1

NEW JERSEY

and Service in the Principal Cities of United States and Canada

AFFILIATED WITH PYRENE MANUFACTURING COMPANY

"We Reduced Production Delays By Installing BUSS Super-Lag FUSES. Now We Use Them Exclusively"

Reports M. J. HYMEL,
Purchasing Agent,
Service Foundry, Inc.,
New Orleans, La.



"About two years ago," says Mr. Hymel, "our electric motors were frequently shut down because fuses were blowing on motor starting loads. These shutdowns were costly—causing interruptions that cut production, disrupted scheduling, and made it difficult to meet delivery promises.

"A wholesaler's salesman had the right answer to our problem when he recommended that we discard our old fuses and use only Buss Super-Lag fuses. Since that time we have completely eliminated fuse blows due to motor starting loads. This convinced us. We have standardized on BUSS, because they have eliminated our troubles."

Why BUSS Fuses Don't Blow Needlessly

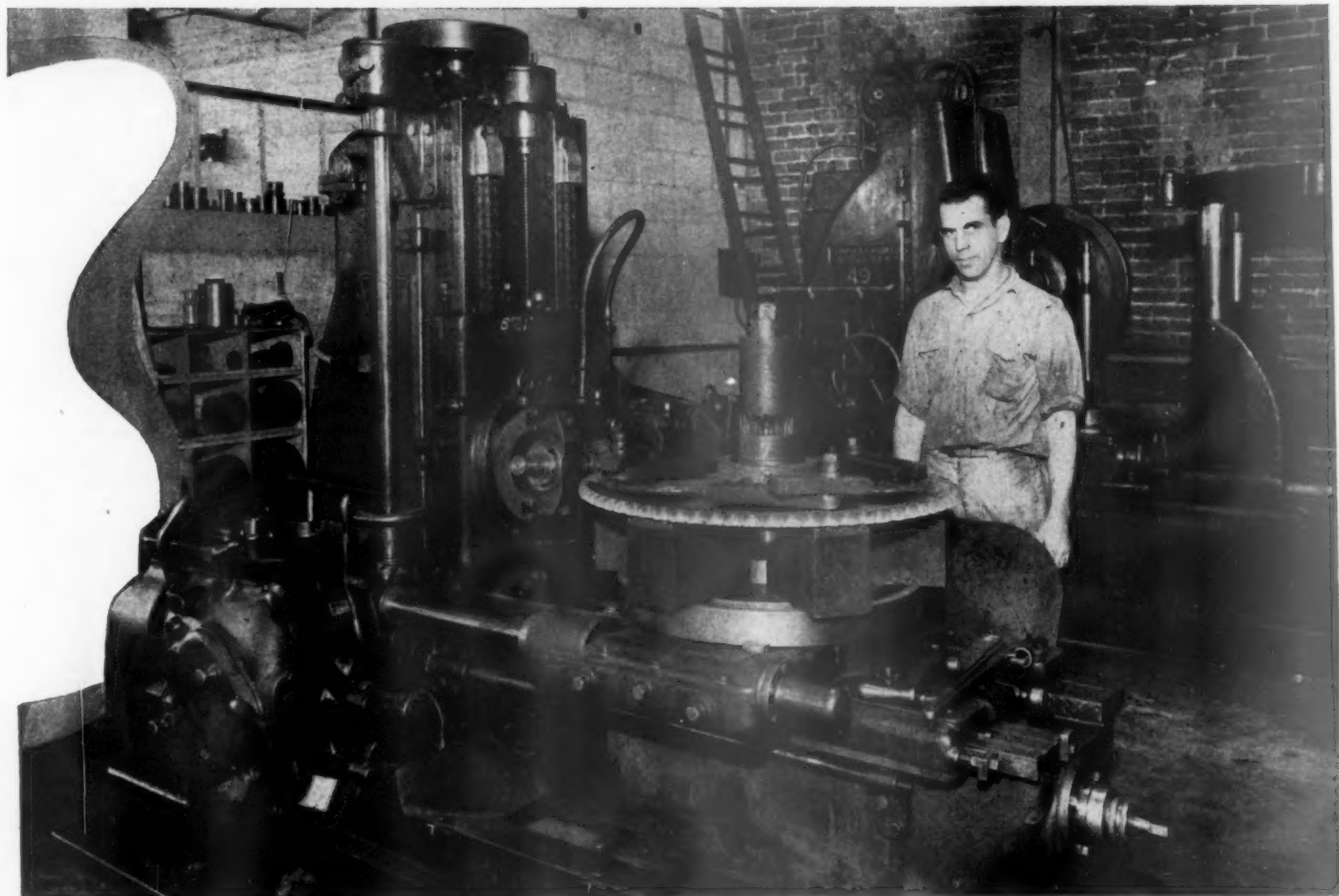


10 FEATURES
in the design of the
FUSE-CASE help
make it possible.



and **The**
SUPER-LAG
development in the
FUSE-LINK com-
pletes the job.

★★★ **BUSS**



Gear Hobbing Machine in Service Foundry, Inc.

Here is another outstanding example that demonstrates how Buss Super-Lag fuses are helping to keep production running smoothly, how they reduce lost man-hours, and save trouble and grief for electricians and maintenance men.

If you have a problem similar to the one at Service Foundry, Inc., doesn't this example indicate how you can profit by the use of Buss Super-Lag fuses?

Buss fuses require no maintenance or periodic inspection. They don't open needlessly. If one opens, you can be sure some condition needs correction. When one opens, it requires less than 45 seconds to renew with an inexpensive link.

Why BUSS Fuses greatly reduce or entirely prevent needless blows

The fuse case is designed to insure good contact on the link, even when the fuse is renewed by an inexperienced person—and it is so de-

signed that vibration or heavy overloads or the constant heating and cooling of the fuse will not permit poor contact to develop. Thus excessive heating, which causes fuses to blow needlessly, is prevented.

The fuse link used is the famous "BUSS Super-Lag." It has lag-plates attached to it. These give it a time-lag so long that it will reduce to an extent not possible with any other renewable fuse, the number of shutdowns caused by needless fuse blows.

Prevent future trouble in your plant—by doing this today

Pass the word along that all purchase records dealing with circuit protective devices should be immediately changed to call for BUSS Super-Lag Renewable fuses. Then, as fuses are replaced or new installations made, your plant will automatically get the benefit of the care-free, trouble-proof protection that BUSS Super-Lag fuses afford.

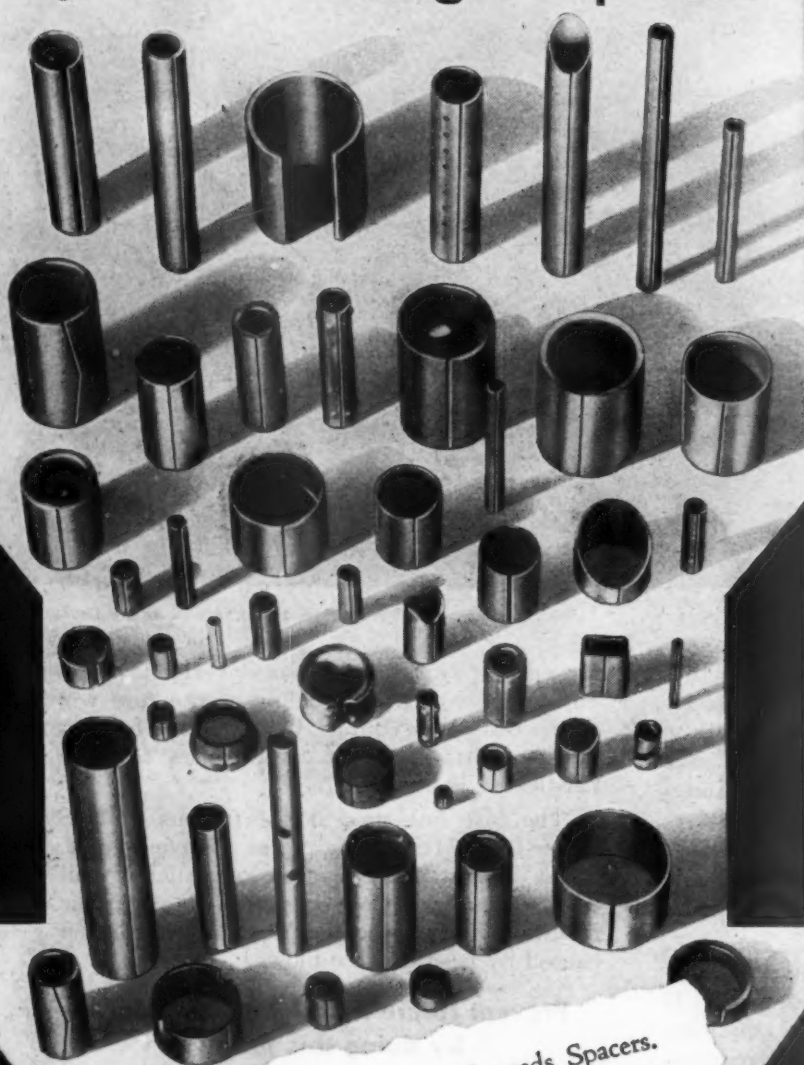
BUSSMANN MFG. CO. • ST. LOUIS 7, MO.

Division McGraw Electric Company

Super-Lag FUSES

SOLD THROUGH
WHOLESALE

Your Products Can Probably be Improved with Wagner Spacers



Nearly every product in every field needs Spacers. We have perfected a new method of producing them, on specially designed automatic machines, in any metal and in a large variety of sizes and shapes. Every day manufacturers find new uses for Wagner Rolled Butted-Joint Spacers and Bushings. They speed up production and are economical to use. Investigate the use of Wagner Spacers in your products. Write today.

E. R. WAGNER MFG. COMPANY
4613 North 32nd Street • Milwaukee 9, Wisconsin
Since 1899 producers of Metal Specialties, Continuous Hinges, Hinges and Hardware.

(Continued from page 172)

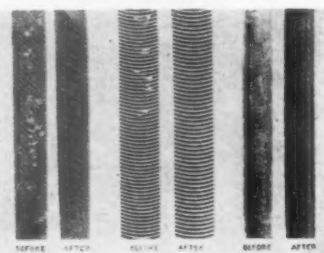
on the bed of the unit and the operator moves the pipe back and forth about 10 to 12 inches at a time under the revolving brushes, rotating the work slowly to clean all sides. A long length of pipe is handled by placing it on adjustable roller dollies.

The company reports that this power brushing method has greatly increased output and is much more effective than previous machine methods, being at least 10 times faster than hand methods.

1 1 1

DEVELOP METHOD FOR SALVAGING FILES

Announcement by the Sav-A-Tool Corp., 3569 Eastern Ave., Cincinnati, O., tells of the development of a method for restoring files customarily discarded. The



method is said to have no similarity to ordinary types of file cleaning or processing, nor does it affect the original temper of the old file. Cutting edges on the worn file are sharpened, all burrs are removed, and files are anti-rust treated. Life of salvaged files is said to average 80 to 90% of the cutting life of the original file. Files can be restored by the method as many as three times it is said.

1 1 1

RED CAPS PROVE PRACTICAL SAFETY DEVICE FOR MUTE PERSONS

Distinctive marking in the form of a bright red cap has been adopted for wear by totally deaf individuals as a safety precaution, at the Louisville Ordnance Division, Westinghouse Electric & Manufacturing Co., Louisville, Ky. The caps are of the type used by members of softball teams. At Louisville, workers are required to clear from under crane loads, and the use of the caps has proved quite successful in keeping these workers as free of hazards as any other group of workers on similar work.

1 1 1

SYNTHETIC LEATHER TANNIN MATCHES NATURAL TANS

The first complete synthetic replacement for vegetable tannins, which frees American Tanners from dependence on these imported materials, is said to produce leather fully equal in quality to that produced with war-scarce natural tannins. Known as Orotan and developed by the Rohm & Haas Company of Philadelphia, the new synthetic is a reddish brown viscous liquid, resembling the conventional liquid tanning extracts, and is completely

(Continued on page 178)

He Does Faster Filing
With Less "Elbow-Grease"
because
SIMONDS RED TANG **FILES**
have teeth like
SIMONDS SAWS

Chips roll easily off the teeth of Simonds Files, just as they do from the bits of machine tools . . . long, spiral chips that mean smooth, easy cutting instead of scraping that leads to quick fatigue.

And Simonds *Red Tang* File teeth are not only fast-cutting . . . they're long-lived as well, because they're designed and shaped like the teeth of Simonds Metal-Cutting Saws. So you can bank on *Red Tang* Files to cut more metal with each stroke . . . and to stay sharp longer. These files are made in only one quality, A-1. Order them from your Industrial Supply Distributor, or from the nearest Simonds office:

BRANCH OFFICES: 1350 Columbia Road, Boston—27, Mass.; 127 S. Green St., Chicago—7, Ill.; 228 First Ave., San Francisco—5, Calif.; 311 S. W. First Ave., Portland—4, Ore.; 520 First Ave. So., Seattle—4, Wash.; 31 W. Trent Ave., Spokane—8, Wash.

SHORTEN THE WAR . . . BUY BONDS



SIMONDS
SAW AND STEEL COMPANY
FITCHBURG, MASSACHUSETTS

PRODUCTION TOOLS FOR CUTTING METAL, WOOD, PAPER, PLASTICS

IRON HORSE BRAND OILY WASTE CANS for *Safety with Durability and Economy*

Constructed in accordance with Underwriters Laboratory Specifications. Approved by Associated Factory Mutual Fire Insurance Companies.

Reinforced top—extra strength to stand up under rough treatment. Gravity closing for safety—can't stay open.

Opening mechanism hugs can exterior—no place for clothing to catch.

Man-size handles—securely riveted, make moving and handling much easier.

Full apron body amply ventilated for air circulation. Firm foundation eliminates tipping. Constructed of galvanized steel.



ROCHESTER CAN COMPANY

80 GREENLEAF STREET, ROCHESTER 2, N. Y.

A HALF-CENTURY PLUS-ONE

1892

1943

51 years of honest service and real old fashioned workmanship in the manufacture of gears.

SIMONDS are known for quality gears. All types — cast and forged — steel, gray iron, bronze; also silent steel, rawhide and bakelite.

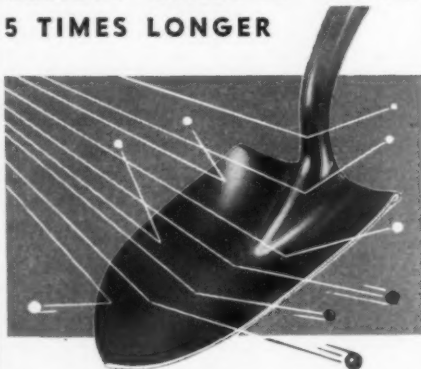
Write for information

Distributors for
RAMSEY Silent Chain
Drives and Couplings

THE
SIMONDS GEAR & MFG. CO.

25th and Liberty Sts.
PITTSBURGH, PA.

THEIR HEAT TREATED
"SURFACE PEENED" STEEL
RESISTS "FATIGUE" 2½ TO
5 TIMES LONGER



To give industry a finer RAZOR-BACK SHOVEL

The strongest light shovel on the market (because of 13 gauge center backbone tapering to 17 gauge sides) is now even tougher and longer lived. Improved heat treatment with "Surface Peening" adds 2½ to 5 times more resistance to the bending fatigue that makes ordinary shovels break. Send for Catalog and prices.

THE UNION FORK & HOE CO.
692 Hocking Street, Columbus 15, Ohio

ALSO MAKERS OF STONE BALLAST AND
INDUSTRIAL FORKS—ASPHALT AND ROAD RAKES

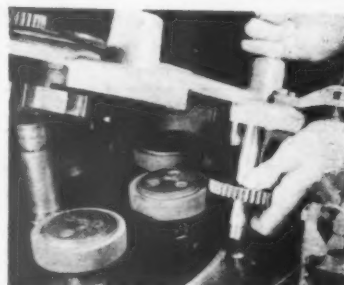
(Continued from page 176)

soluble in cold as well as hot water. Orotan is produced entirely from domestic raw materials, and capable of tanning all leathers, from the lightest to the heaviest without using a vegetable tanning. Its similarity to vegetable tanning extracts is apparent in the following table of analytical figures: Specific gravity 1.26; Tannins 31.0; Non Tannins 31.0; Insolubles 0.0; Water 42.0.

1 1 1

SYNTHETIC TRANSMISSION RINGS SAID TO OUTWEAR RUBBER

Originally developed to prevent gear breakage in the event of jamming, a unique type of power transmission in-



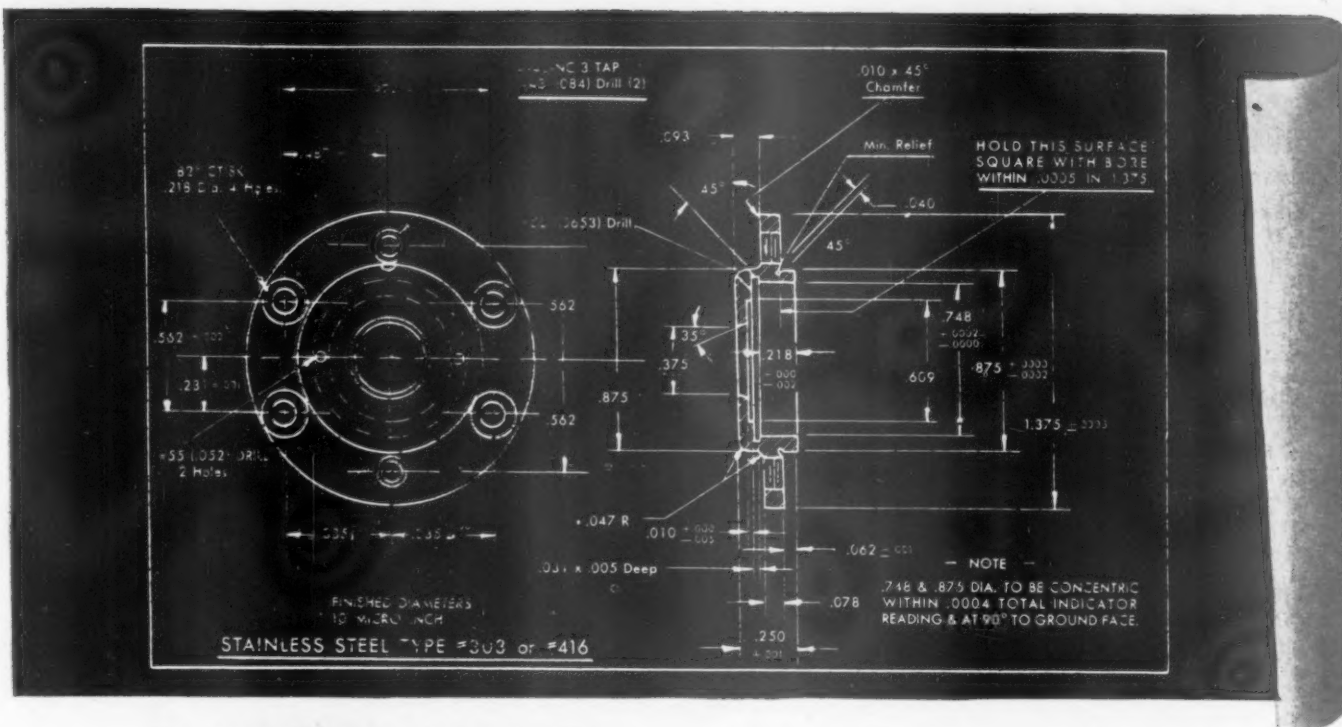
Compar Synthetic Transmission Rings

volving rubber rings that mesh with metal gears on revolving turret machinery was in use in the eastern plant of a large radio manufacturer before rubber became scarce. In the course of a rubber conservation program, it is reported that when the rings were made of compar, a vinyl resin derivative compounded by Resistoflex Corporation, Belleville, N. J., their service life was increased five times. The material is compounded to give the exact degree of flexibility, elasticity and abrasion resistance required for each particular application.

1 1 1

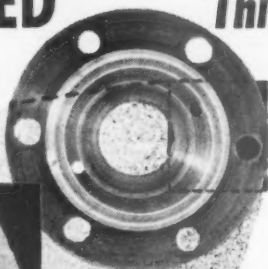
WIDE BASE RIM INCREASES TRUCK-TIRE LIFE

In line with tests that have demonstrated that the use of a wider rim will increase tire mileage and preserve the carcass of the tire for a greater number of retreads, Goodyear Tire & Rubber Co., Akron, Ohio, recently announced the development of a new, wide base rim, combining all the features of the present standard rim, with an ingenious new side ring that increases rim width. The width provides the 70% ratio to sectional diameter of tire that is said to provide maximum tire performance. Tires mounted on the wide rims do not generate as much heat in the shoulder of the tire as do those mounted on narrow rims and the average amount of deflection under load and in motion is reduced by 12½% when ratio of rim width to that of tire sectional diameter is increased from 60 to 70%. Wider rim is also said to add to the stability of the tire, reducing sway and giving a more positive steering response. Tire mileage increases of 15 and 18% are reported through the use of the wide base rim.



5 SHOPS FAILED

ACTUAL SIZE super-
precise part made
from print above.



This precision job required

TOMLEE

technique



Finished on Precision Lathe without grinding!

This piece holds an airplane type ballbearing in which are mounted the shafts for a gyroscope. It must be absolutely burr-free, so that not even a fingernail will catch in any portion of the finished part.

Five shops attempted to make this part, and failed. Note the tough concentricity! Our rejections on this piece run less than 3% in lots of 5,000, in spite of two 100% inspections.

The part is blanked on a turret lathe, run through a series of set-ups using comparators, and the tolerances that are difficult to hold are finished on a precision lathe.

At these machines, comparators equipped with Johanssen blocks check each piece as it is run. And the pieces never see a grinder!

Sounds simple enough. But it isn't. It takes an organization of good machinists, equipped with the finest tools, and accustomed to working to close tolerances.

We'll take your headache jobs off your hands, and finish them right. They'll come back to you ready for assembly—and the bill will be less than you expect.

Send us your prints—tell us how many pieces you require, and ask us to give you a bid. You'll be pleasantly surprised—we make these super-precision production parts for less than you can make them in your own plant.

Write today to . . .

TOMLEE TOOL & ENGINEERING COMPANY

253 Third Avenue South: Minneapolis 15, Minnesota

SUPER-PRECISE PRODUCTION PARTS

Among the ASSOCIATIONS

POSTWAR PURCHASING CLINIC

**Purchasing Agents Association of New Orleans and
Committee for Economic Development in
First of C.E.D. Meetings**

The first of a series of 63 "postwar purchasing clinics" to be held throughout the country to assist business, and especially small businessmen, in meeting their purchasing problems in the reconversion period took place September 11 in New Orleans under the joint auspices of the local Purchasing Agents Association of New Orleans and the New Orleans Committee for Economic Development.

This nation-wide series of panel discussions, to be held in all 63 cities in which N.A.P.A. has locals, has been undertaken in cooperation with the national C.E.D. It will consist of down-to-earth discussions of the following subjects, especially in their local application:

1. Settlement of terminated war contracts.
2. Disposal of government-owned surpluses.
3. Lifting of wartime controls.

Basic material for the panels will be these recent publications of the C.E.D. Research Division:

1. C.E.D. Research Report, "The Liquidation of War Production," by Dr. A. D. H. Kaplan, McGraw-Hill Book Co.
2. C.E.D. Statements on National Policy: "Postwar Employment and the

Liquidation of War Production," and "Postwar Employment and the Settlement of Terminated War Contracts"

N.A.P.A. plans later to hold similar panels in other C.E.D. communities than those in which it has locals. C.E.D. has local committees in more than 2,000 communities throughout the country. The panel series will extend over the greater part of the coming winter.

Said C.E.D. Director of Field Development, C. Scott Fletcher: "The work of these N.A.P.A. groups should be of particular value to local C.E.D. Committees on the Special Problems of Small Business, inasmuch as the N.A.P.A. members, in addition to their activities in the companies with whom they are individually associated are also undertaking to help small operators, who do not have purchasing departments, to benefit from their experience."

R. C. Haberkern, chairman of the N.A.P.A. Committee for Postwar Development, said: "No greater opportunity has ever been offered to the members of the National Association, not only for recognition, but also for service, than this nation-wide program in cooperation with C.E.D."

1 1 1

PURCHASING AGENTS AND RECONVERSION

**Washington Association Told Management Will Look to
Purchasing Agents for New Ideas**

The address of Harold K. Howe, Washington representative of the La Salle Steel Co., Chicago, Ill., titled "Purchasing Agent's Part in the Reconversion and Post War Periods," featured the October meeting of the Purchasing Agents' Association of Washington, D. C., at the Mayflower Hotel on October 10.

Mr. Howe, who is a well-known speaker among purchasing agent groups throughout the East and Middle West, spoke at length on the problems of contract termination, reconversion, the new products field, and improved industrial techniques.

In speaking of new industrial techniques he stated that there was much for Purchasing Agents to learn and that management will look to Purchasing Agents for new ideas; that Purchasing Agents would become a larger factor in management if they grasped the opportunity of

becoming fully acquainted with these improved techniques and technological advances made by industry during wartime. He expressed the opinion that consumer durable goods will last much longer due to improvements and that better quality products are on the horizon at fair prices.

Mr. Howe said that unbalanced inventories are a great problem which must be met during the transition from wartime to peacetime production. In speaking of surplus war property he remarked that industry appears to be unwilling to take a chance on used machine tools and that buyers are afraid of surplus property without warranty. He stressed the importance of exercising care in loading and unloading surplus property; that government controls have taught industry a great deal because of the necessity of using substitutes and alternate materials

(Continued on page 184)

LOS ANGELES ASSN. HAS 430 ACTIVE MEMBERS

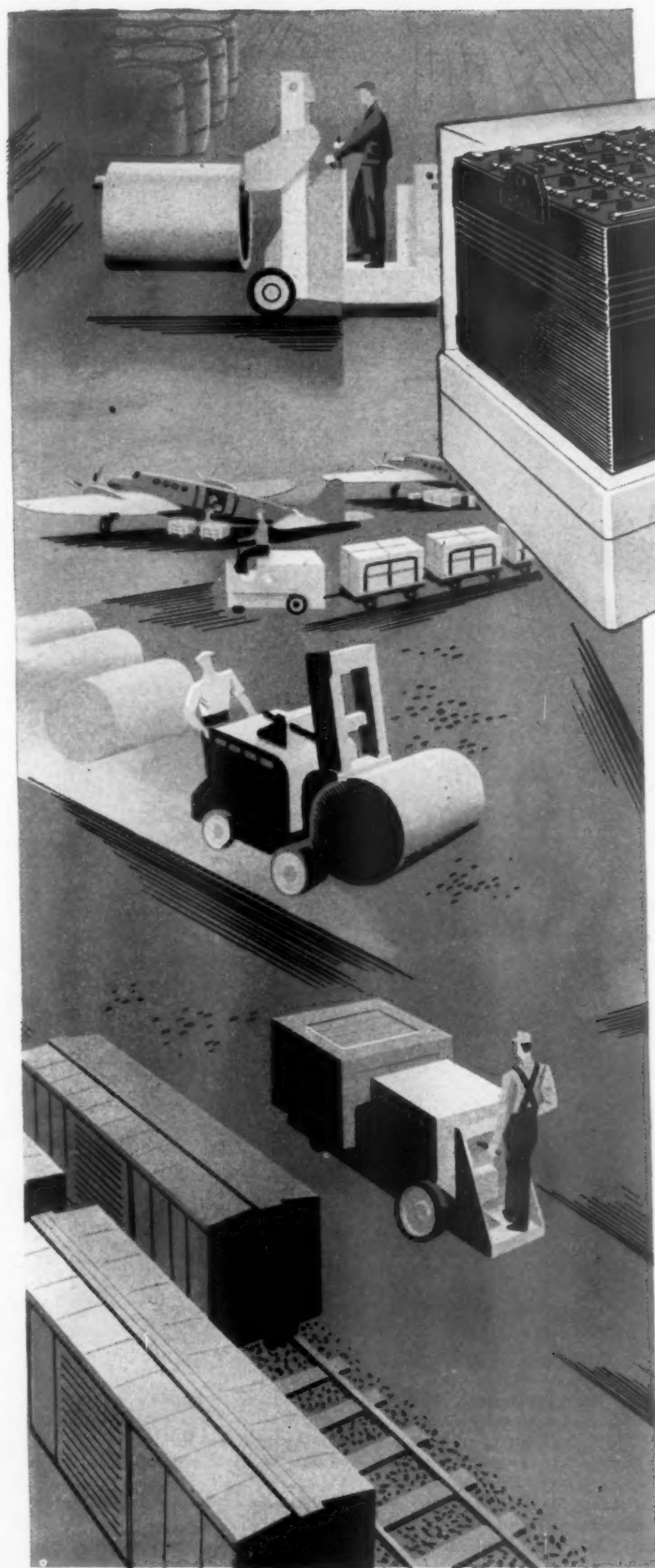
Don Cuff, chairman of the membership committee, Purchasing Agents Association of Los Angeles, Calif. in a recent report, stated that the association now has an active membership of 430 members, as compared with 372 on September 1, 1943, and 340 on September 1, 1942. This increase represents a "normal industrial growth in this district", he reported. "This industrial growth is going to be steadily enlarged as we come to the conclusion of the war and, particularly, in peacetime developments which are assured for Southern California."

"We are not particularly interested in the numbers that we may now have or obtain as compared to other large populated areas and industrial centers other than to serve purchasing men here with an association that is primarily dedicated to their interest and welfare. We are now and have been for some years the third largest in the National association. Pride in our community naturally impels us to want to maintain this position and, if possible, improve it. At the same time the association and its membership committee wholeheartedly concurs in the eligibility rules of the National association, and we ask members, when names are submitted, to be satisfied themselves that the names of all prospects submitted are men who are definitely and without equivocation men whose principal duties are those of procurement."

September was a busy month for the officers of the Los Angeles association and its members. September 4th association officers held a conference with Manager Lloyd Williams of the Committee for Economic Development. September 8th there was a meeting of the Aircraft Buyers Committee followed by another September 20 at which the subject "Surplus Materials and Contract Terminations" was discussed. On September 14th there was a round table discussion on contract terminations and surplus materials presided over by Chairman Seymour T. Hull, Purchasing Agent, U. S. Rubber Company, Los Angeles Plant. The discussions were led by George Byrnes, former W.P.B. official and now purchasing agent for the Pacific Sound Equipment Company. At the association's regular monthly dinner meeting held at the Elks Club September 14, Mayor Fletcher Bowron was the principal speaker, his subject being "Post-War Plans for Los Angeles." The association's monthly noon luncheon meeting was held in the Chamber of Commerce Dining

(Continued on page 182)

PHILCO IS READY TO REDUCE YOUR POST-WAR BATTERY COSTS



THE NEW "PHILCO THIRTY" *Gives 30% Longer Life*

Storage battery purchases made from now on, are essentially a post-war investment. So be sure to keep posted on this sensational post-war Philco Battery development—the new Philco Thirty that gives 30% longer life! Here, at last, is a really revolutionary new long-life construction—employing a brand new principle of **FABRICATED INSULATION!*** It's available now in certain types and limited quantities. And as rapidly as war time restrictions are eased, Philco will make it possible for every user of electric industrial trucks to share in the new economy and more efficient operation of this great new battery. Write today for information. *Patent Applied for

**PHILCO CORPORATION, STORAGE BATTERY DIVISION
TRENTON 7, NEW JERSEY**

Specify

PHILCO

INDUSTRIAL TRUCK BATTERIES

FOR 50 YEARS A LEADER IN INDUSTRIAL
STORAGE BATTERY DEVELOPMENT

PRODUCTION DOUBLED?



The Surest Way To Save Money

A lot of careful buyers are making Cortland War Production Tests — after they learn about comparative results like the following:

WORK: Plate for Diamond Holder—cast iron: 76.5 sq. in. per piece: 7 pieces per table load. Test: Cortland Chucks and Segments vs. another brand of Sectored Cylinder Wheels.

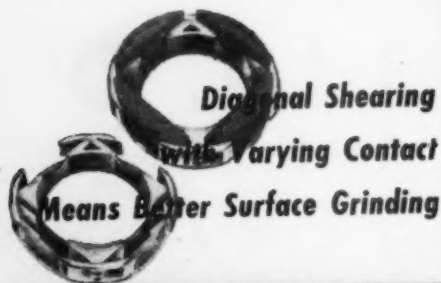
RESULTS OF TEST: Twice as much stock removed by Cortland; no dressings necessary against 5 with other brand; grinding time 6 minutes vs. 11 minutes for cylinder.

Why not have your plant men run a Cortland Production Test? You can show them how one grinding wheel can do the work of two — how to save time and money while increasing production efficiency and quality. Write for latest illustrated bulletin giving the convincing Cortland performance story.

CORTLAND GRINDING WHEELS CORP.

12 Cortland St.,

Chester, Massachusetts



CORTLAND
Chucks and Segments

(Continued from page 180)

Room, where the subject of "Surplus Materials and Contract Terminations" was again discussed, the speakers being Seymour T. Hull, Chairman of Surplus Materials and Contract Terminations Committee, and George E. Byrnes. This meeting was presided over by Virgil Waters, Chairman Noon Luncheon Committee, Purchasing Agent, Utility Trailer Manufacturing Co.

At the monthly dinner meeting October 12, Colonel Alexander R. Heron, Director, Reconstruction and Reemployment Commission, State of California was the principal speaker. National vice president, George S. Drury of Seattle, and six national directors from District One associations were guests at this meeting.

TRUTH ABOUT SOUTH AMERICA PHILADELPHIA

Ray Josephs, author of "Argentine Diary" was the principal speaker at the October 12 meeting of the Purchasing

Agents Association of Philadelphia, held in the Bellevue-Stratford Hotel, his subject being "The Truth About South America". Preceding the dinner meeting, the subject of Termination Inventory and Surplus Property Disposal was discussed at a forum meeting, the speakers being Edward W. Carter, Wharton School, University of Pennsylvania, Major A. W. Gilmer, Philadelphia Ordnance District, and, Lieut. Commander J. P. Kilroy, United States Navy. Six new members were elected to membership since the September meeting.

EDITOR HEINRITZ GUEST SPEAKER AT SOUTHERN MEETINGS

"What's New in Purchasing" was the subject of address made by Stuart F. Heinritz of PURCHASING Magazine, at the October 16 meeting of the Purchasing Agents Association of Georgia, in Atlanta.

On the 13th he spoke at the "Executive" (Continued on page 184)

TRI-STATE PURCHASING AGENTS ASSOCIATION



Members of the Tri-State Purchasing Agents Association, have holiday on the estate of President C. E. Bales near Ironton, Ohio.

Upper-Left: The oldest and youngest members of the Association, namely, A. A. Meyer and Frank M. Noecker, respectively. Upper Right: W. A. Murdock exhibits "the lima beans grown by we Hill Billies."

Standing: Left to right: Messrs. Noecker, Murdock, Kearney, Bales (president) Beavan (sec'y-treas.), Moran, Head, Green, Bowden, Londeree.

Front Row: Messrs. Byllesby, Boyd, Meyer, Shirley (vice pres.), Roush, Smythe, Holliday, Wilhelm.

SOME BABY!



SHE can whip more than her weight in U-boats, this Baby Flat Top (Escort Carrier) of the United States Navy! Designed originally for defense of American coasts and convoy lanes she quickly became a Number 1 weapon of attack.

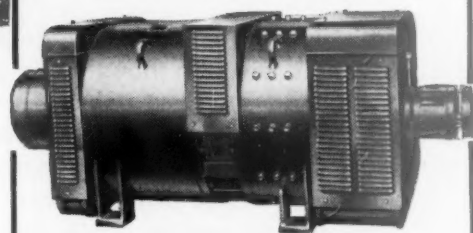
Her success in sending fleets of fighters and torpedo-planes to exterminate Axis wolf packs in every sea contributes to the U. S. Navy's record as "the world's toughest customer".

Tough in battle, the Navy is likewise tough in selecting and purchasing equipment for fighting ships and men. Although she was created in a hurry by adding a flight deck to a merchant vessel or tanker hull, the Baby Flat Top is "Navy" from stem to stern. Her equipment is the stoutest that can be made; she fears no sea.

Building motors and motor generators for Baby Flat Tops is just part of Star's work for the Navy. And, while the Navy endorses no product, the fact that Star is able to meet rigid Navy specifications . . . is evidence of superior engineering ability and workmanship. Remember Star's Navy record when you need a motor or motor generator!

Star Electric Motor Co., 200 Bloomfield Ave., Bloomfield, New Jersey

SATISFYING THE WORLD'S
TOUGHEST CUSTOMER



Ready NOW for Your Motor Problem

Motor generator above changes direct current into alternating current for operating gun turrets and other equipment on Baby Flat Tops, built by Kaiser Co., Inc. Like other Star motor generator sets used for Navy Degaussing and Radar equipment, this unit was especially designed and built by Star to meet Navy requirements for exceptional compactness, capacity and ruggedness.

This is proof of ability to handle any difficult motor problems that may confront you. If one of Star's standard motors ($\frac{1}{8}$ th to 200 H.P.) does not meet your exact needs, Star has the "know how" to build a motor that will. Our engineers are ready now to discuss your post-war plans.



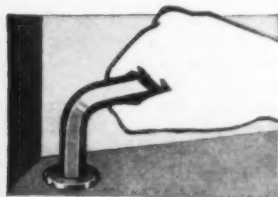
STAR MOTORS

POWER PACKAGED AS YOU NEED IT

LEADERS LOOK AHEAD



Industries, today actively engaged in producing war-time essentials, are also thoughtfully planning for the future . . . Just ahead are vast unexplored markets, in addition to the more familiar ones. To satisfy these, new machinery and machine tools, unique parts and gadgets are being created and blue-printed. Every component part is being studied to be certain it will give the performance and do the job for which it is intended . . . Yes, Leaders are Looking Ahead — preparing for "the day"!



**INTERNAL WRENCHING
FEATURE - QUICK &
POSITIVE TIGHTENING**

SOCKET SCREWS

The BETTER Fastening Method

Holo-Krome Fastening Engineers are now consulting with Design and Production Engineers, in various types of industries, on production plans for the future — plans which will definitely specify Holo-Krome FIBRO FORGED Socket Screws — the Better Fastening Method.

CATALOG OF HOLO-KROME PRODUCTS GLADLY SENT.

THE HOLO-KROME SCREW CORP.

HARTFORD 10

CONN. U. S. A.

(Continued from page 182)

tive Night" meeting of the Purchasing Agents Association of Birmingham on the same subject. The day before he was the principal speaker at a meeting of the Kiwanis Club at the Tutwiler Hotel, Birmingham, on "Purchasing for Victory in War and in Peace."

October 19th Mr. Heinritz spoke before the regular monthly meeting of the Purchasing Agents Association of Chattanooga.

1 1 1

PURCHASING AGENTS AND RECONVERSION

(Continued from page 180)

and that American industry has learned how to get by on a 60-day inventory and has also profited from government controls in that it has taught industry to keep better records and to become cost-conscious.

Stabilized Prices

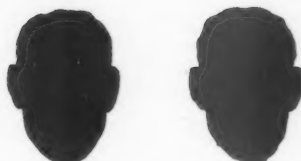
He expressed the opinion that after reconversion gets under way, prices will settle down and be more consistent with cost of production. As to sources of supply he warned that pre-war sources are disappearing and cautioned Purchasing Agents to watch the trend of certain large companies buying up smaller companies producing single lines. In speaking of simplification controls he said that the hardware industry, for instance, would like to see these controls kept. He expressed the opinion that Purchasing Agents would be deluged by sales managers and salesmen because they are keyed up over reconversion and post war sales prospects.

Of interest to all industrial purchasing agents is a statement made by Mr. Howe that the members of management of certain concerns are retiring from active service and appointing a junior management group consisting of the sales manager, the controller, the engineer, the Purchasing Agent, the personnel director, and the factory manager, to manage and operate certain industries on a cooperative profit basis over and above a fixed income to retiring management. A question-and-answer period followed his address.

November 14 National Night

C. Warner McVicar, chairman of the Program and Entertainment Committee, announced progress of arrangements made for the reception of Robert C. Swanton, president of the National Association, who will visit the local association at its November 14 meeting. He also announced that George Renard, Secretary-Treasurer of the National would address the local at its February meeting.

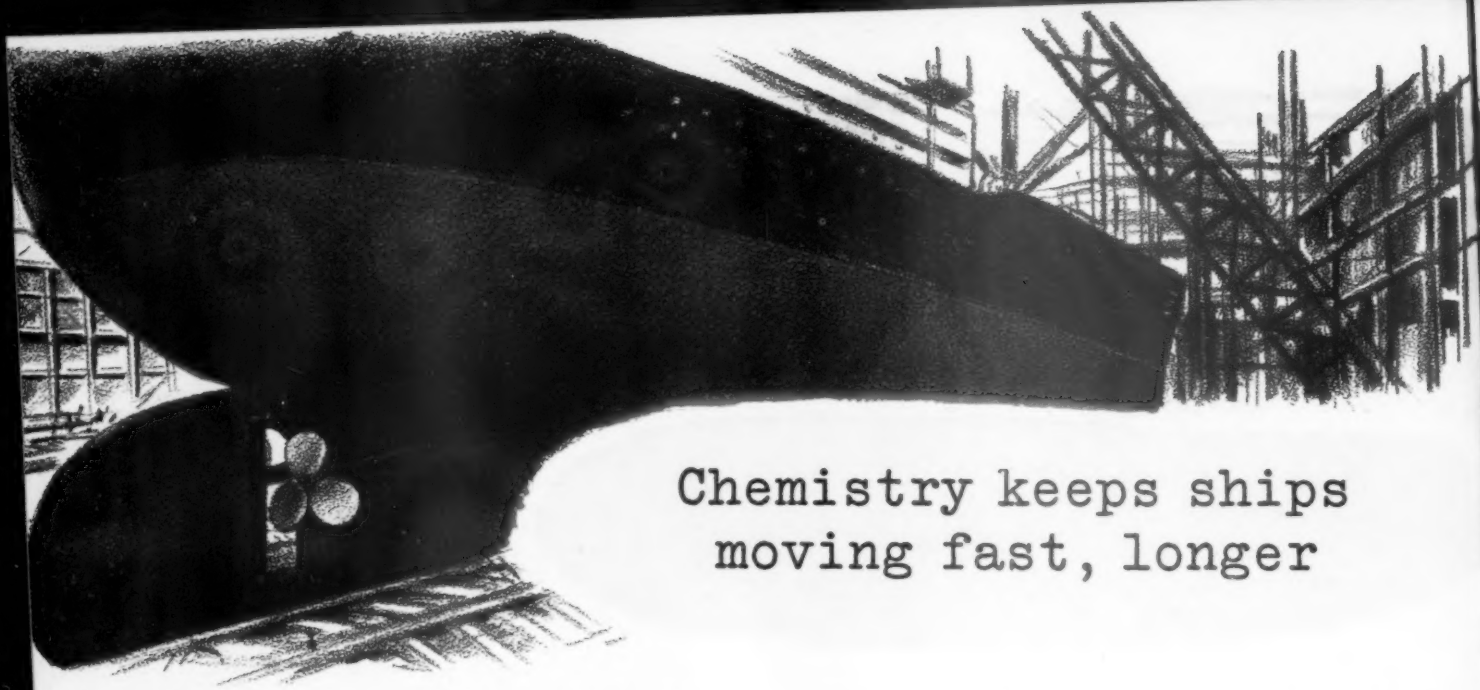
Ed Scully, vice president, Eighth District, National Association, and Clifton E. Mack, national director, Washington association, attended the Council meeting at Buffalo, October 14, at which Mr. Scully presided. A diamond studded NAPA lapel pin was presented by President Jack Kurtz to Ed Scully, first president and organizer of the local association.



TWO HEADS
ARE BETTER
THAN ONE...

This is an invitation for *you* to tell *us* about our products. Naturally, it's our business to know a lot about them. Our research men and women, our plant engineers, our technical representatives, are constantly putting these products through their paces, exploring new fields, new applications, testing new ways to help you.

From the unexplored sections of Hercules Land—from cellulose, rosins and terpenes, papermakers chemicals, synthetics, explosives, and chemical cotton—come startling new ideas. But we need your help. We know that your knowledge and our knowledge together will accomplish things faster than either of us can alone. If, as is entirely possible, we have a group of products useful to you (or helpful research data) we would like to share them with you. Please write to Hercules Powder Company, Wilmington 99, Delaware.



Chemistry keeps ships moving fast, longer

Recently released pictures dramatically show the results of a research program on anti-fouling paints, paints designed to protect a ship's hull from barnacles. These tiny sea animals can cover a ship's hull in a few months, cut its speed 25%. Different areas on the hulls were painted with various types of paint containing barnacle poison. Photographs taken after months of service showed that on those areas where Hercolyn*-based paint was used there was no growth.

*Reg. U. S. Pat. Off.

Hercolyn, a Hercules resin-plasticizer, helps prevent growth of barnacles by keeping the paint open and soft, leaving the poison free to protect the surface of the hull.

Hercolyn is one of a group of Hercules rosin esters now available not only for paints but also for lacquers, printing inks, floor tiles, papers, laminates, and adhesives—wherever a tackifier, extender, or binder is needed. Write Synthetics Department for further data.

Plastic laminates reveal new advantages

Experimental work on plastic laminates (using either cellulose acetate, cellulose nitrate, or ethyl cellulose) with cloth, glass fabrics, paper, or other structural materials suggests many outstanding possibilities. The laminates are dimensionally stable, extremely tough—many combinations withstanding sharp blows without marring.

They are lightweight, tear-resistant, and provide the color and finish of plastics. They can be drawn into shapes from flat sheets or simply built up over forms. Some of the indicated uses are: inside refrigerator panels, air vents and fairings in planes, housings for delicate instruments, boat hulls, trunks, and luggage. Cellulose Products Department.

A proved seal for batteries

The problem of meeting today's ever-increasing demand for dry cell batteries is being solved by Hercules Vinsol. This low-cost thermoplastic resin formed a battery sealer which met the requirements for an ideal seal: perfect adherence to the metal sides and to the carbon posts; impervious to air; free from air bubbles; and unaffected by extreme heat or cold. Write Hercules, Naval Stores Dept., for data on Vinsol* in sealers, paints, lacquers, cement roads and airfields, molded phenolics, and scores of other products.

*Reg. U. S. Pat. Off.



Millions of enemies in one foxhole



Thriving in the heat and wetness of jungle foxholes are some 18,000 different types of fungi. These micro-organisms quickly engulf radio transmitters, telephones, and other essential ground signal equipment. In some localities, vital equipment was rendered completely useless in less than six hours.

Nitrocellulose lacquers containing fungicide are ideal for meeting this problem. They form tough, durable films that are waterproof and offer electrical insulating properties.

Hercules is a leading producer of the nitrocellulose base from which lacquers are made. For data on nitrocellulose, write Cellulose Products Department.

Clorafin* for flameproofing

All of the canvas side-show tents in one of America's largest outdoor shows were recently made fire-retardant with finishes based on chlorinated paraffin.

Hercules chlorinated paraffin, called Clorafin, not only flameproofs fabrics but also waterproofs and weatherproofs them. It is easily and quickly applied, and its low cost is more than justified by the longer life of the treated fabrics.

During the past few years a wide variety of military fabrics treated with Clorafin have been used under the severest service conditions. The excellent results obtained pointed the way to an increasing number of civilian uses such as outdoor porch furniture, awnings, tarpaulins, and other fabrics that are exposed either to the weather or to a fire hazard. For further information, write Cellulose Products Dept.

*Reg. U. S. Pat. Off.



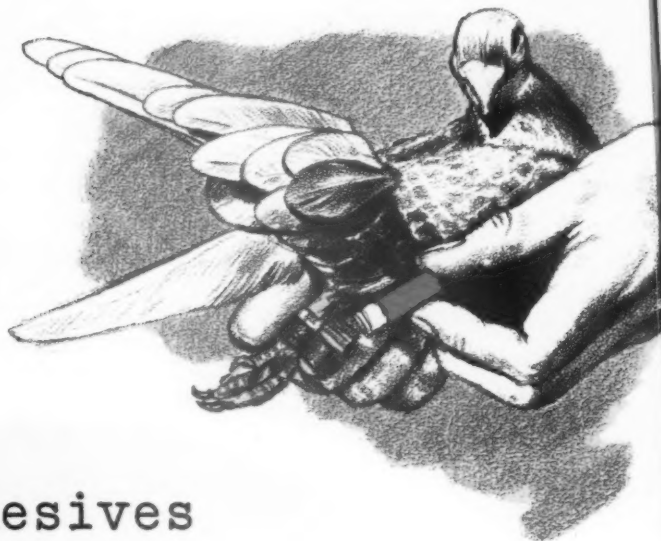
Featherweight containers



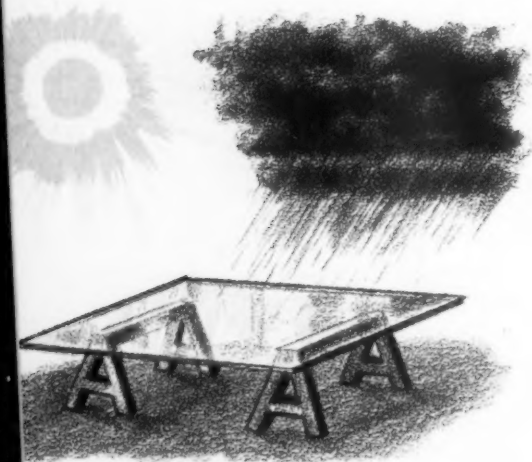
Containers are now being made of cellulose acetate, when featherweight toughness and transparency are needed. They resist the action of salt, mild alkalies and acids, and water. In a special casting process developed by Celluplastic Corporation, the container walls can be made paper-thin, as low as 3/1000ths of an inch.

An example is the oil can illustrated above. It can be printed with the product name or trademark in practically any color. The amount and color of its contents are always visible.

At the right is another example. Message capsules for carrier pigeons are extremely tough, and approximately one-third the weight of former metal capsules. Cellulose Products Department.



For economy in your adhesives



The low-cost rosin esters are continually finding new uses and are also reducing costs. Well known as useful plasticizing resins and tackifiers in rubber-based adhesives, the Staybelite* Esters and Pentalyn* Esters are now proving their value in the newer adhesives based on the various synthetic rubbers and related elastomers.

These versatile esters are: *soluble* in the usual solvents . . . *emulsifiable* with water . . . *compatible* with most elastomers, resins, and waxes.

Hercules will be glad to recommend the ester best fitted for the numerous kinds of adhesive tapes, shoe adhesives, carton and packaging adhesives. Write Synthetics Department.

*Reg. U. S. Pat. Off.

HERCULES POWDER COMPANY

2 Delaware Trust Building
Wilmington 99, Delaware

Kindly send me further details on: _____

Company _____

Address _____

State _____

11-48

HERCULES

WILMINGTON

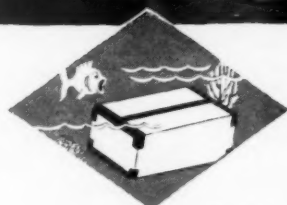
DELAWARE



CELLULOSE PRODUCTS • TERPENE & ROSIN CHEMICALS

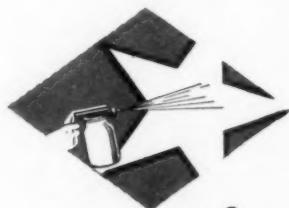
SYNTHETICS • CHEMICAL COTTON • EXPLOSIVES

PAPER MAKERS CHEMICALS



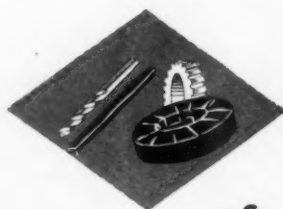
SEALING

against water, moisture, corrosion, dust, insects, etc. Protective packaging.



MASKING

for striping, insignia, stenciling, two-tone painting, processing, electroplating, etc.



PROTECTING

products, parts and high finishes against damage, abrasion corrosion, etc.

Give the little lady an Extra Hand

An intricate assembly comes down the line. Loose parts to be soldered are held firmly in place by strong "fingers" of Mystik tape. *Zip!* The iron solders them quickly in place. Then *zip*, the tape strips off easily, cleanly . . . leaving no adhesive residue.

This is just one of countless jobs Mystik is doing on production lines everywhere. And this powerful, Self-Stik, waterproof cloth tape is ready to solve many problems for you — in production, packaging, shipping, engineering, maintenance . . . in every department and office of the plant.

Let our factory representative or your paper jobber show you how Mystik can go to work for you . . . on dozens

of labor-saving, cost-cutting jobs in your plant. Write for free offer below.



FREE—A testing sample of Mystik and a booklet brimful of Mystik uses. With these you'll get plenty of ideas for solving tough problems. Write Chicago Show Printing Co., 2634 N. Kildare, Chicago 41.



ONE SURE WAY

INSIST ON GRIFFIN

In today's metal cutting, the one sure way for satisfaction is to insist on GRIFFIN BLADES.

There is the Molybdenum High Speed Steel Blades, the most economical cut-off tool on the market today; also High Speed Steel, Soft Center and Soft Back types. The line is complete with the right blade for every job.

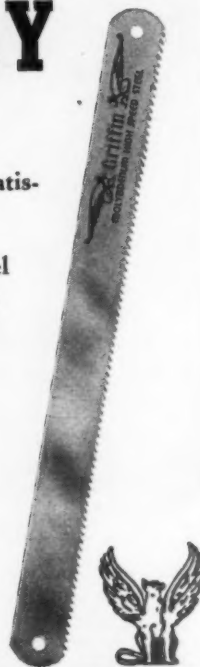
Try Griffin. If your distributor cannot furnish, write us.

JOHN H. GRAHAM & CO. INC.

General Sales Agent

105 Duane Street New York City

Made by G. W. GRIFFIN CO., Franklin, N. H.



GRIFFIN



Here's Why Welders Prefer This Goggle

Primarily, of course, welders choose the No. 420 because it assures them complete safety. But it has other and equally important advantages. It is extremely comfortable — and gives longer wear with minimum care, even with hard usage. Still other important advantages are its patented ventilation feature — that it is moulded entirely of durable plastic and weighs less than 3 oz. complete with lens — and that it has a convenient covered ball chain bridge adjustable to 1/1000 inch.

Sellstrom

MANUFACTURING CO.

634-11 N. Aberdeen St. Chicago 22, Ill.



AIRCRAFT STANDARD PARTS CO., 1755 19th AVE., ROCKFORD, ILL.

ANNUAL BUSINESS CONFERENCE OF CANADIAN ASSOCIATIONS

The Twentieth Annual Business Conference of Canadian Purchasing Agents' Associations was held at the Mount Royal Hotel, Montreal, October 20-21, under the auspices of The Purchasing Agents Association of Montreal for the Council of Canadian Purchasing Agents Associations.

Following a "Review of Council Year" by Len Tolson, retiring president of the Council, Purchasing Agent for the Maclean Publishing Co., Ltd., Toronto, Ont., addresses were made as follows: "Wood Chemistry," by W. J. LeClair, secretary-manager, Canadian Lumbermen's Association, Ottawa, and editor of *Timber of Canada*; "Post War Rackets," by Claude Root, manager, Better Business Bureau of Montreal; and an address on "Glass."

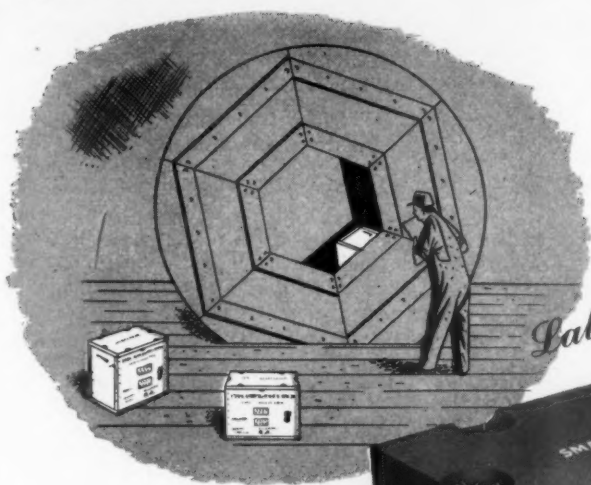
At the luncheon meeting presided over by A. E. Wilson, president of the Toronto Association, and Purchasing Agent for the Toronto Envelope Co., J. Lance Rumble of General Motors Products Co., Ltd., Toronto, spoke on "Post War Planning."

Friday afternoon, the delegates visited the plant of Canadian Vickers Ltd., Marine Divn., Montreal, where they saw "Shipbuilding" from keel to superstructure. This plant visitation was under the direction of James Barnes, committee chairman, Montreal Association. Friday evening was given over to Smokes, Refreshments, Floor Show and Goodfellowship in the ballroom of the Mount Royal, under the direction of H. W. Howlett, Chairman of the Montreal Entertainment Committee.

Saturday was a busy day, commencing at 9:15 A. M. with an address by Julian C. Davies, president of the Canadian Council of Purchasing Agents Associations, and vice president of District No. 5 of the N. A. P. A., who spoke on the "Coming Council Year." Mr. Davies was followed by Executive Secretary George A. Renard of the National Association, who made an excellent address on "From One P. A. to Another." The next speaker was Dr. L. M. Pidgeon, Professor of Metallurgical Engineering, University of Toronto, who spoke on "Light Metals." The concluding morning address was on "Fuels of the Future" by A. S. Morgan, president, Ontario Chapter of the American Society of Heating and Ventilating Engineers, Toronto.

The noon luncheon was dedicated to celebrating the 25th anniversary of the organization of the Purchasing Agents' Association of Montreal and of the Purchasing Agents Association of Toronto, and the 23rd anniversary of the Canadian Council. Saturday afternoon there was a round table discussion on Commodities.

Saturday evening, President R. C. Swanton of the National Association of Purchasing Agents was the principal speaker at the annual banquet, the evening later being given over to music and entertainment. Harold A. Corriveau, Purchasing Agent, St. Lawrence Sugar Refineries Ltd., Montreal, general conference chairman, directed the affairs of the evening.



Laboratory Tested



War Proved



Over **75%** of all overseas war shipments go in modern engineered **WOODEN BOXES**

War record proves Army-Navy-Maritime men charged with getting 700,000 fighting items to fighting fronts have found answer to shipping container problem in modern engineered wooden boxes — they pack over 75% of them in wood!

Their problem: to meet new, extreme, war-bred packing conditions — to protect weighty tank, gun, aircraft parts . . . fragile electronic equipment . . . perishable foodstuffs . . . temperamental explosives against shipping hazards of desert, swamp, jungle . . . sleet, storms

at sea, rough handling, tough going . . .

The answer: design and engineering advances in wooden boxes combining the experience of the *oldest* packing medium with the know-how of the *latest* engineering thought . . .

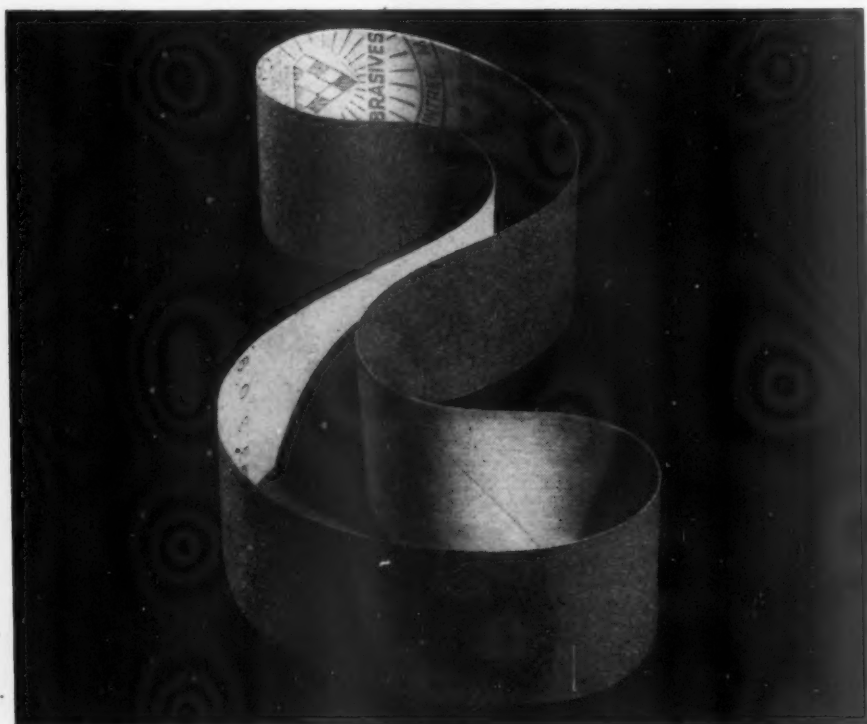
First proof: before new designs are used, exhaustive tests in modern laboratories . . .

Final proof: *Wooden Boxes Are Delivering The Goods!* Peacetime packing problems will be answered the same way!

Remember WOOD PACKAGING IS GOOD PACKAGING!

★ THE NATIONAL WOODEN BOX ASSOCIATION • Washington, D. C. ★

Because they're insulated to withstand grinding temperatures as high as 1700°, Silver Streak Metal Working Cloth Belts stay cool . . . Because they stay cool, fine-grit **SILVER STREAK** Belts cut faster . . . cut cleaner . . . last longer than hot-running, non-insulated belts.



In spite of these three big advantages, insulated **SILVER STREAK** Belts don't cost a penny more than ordinary aluminum oxide belts. Reason enough for switching to Silver Streak Belts NOW!

AVAILABLE IN GRITS 50 AND FINER



Abrasive Products, Inc.

SOUTH BRAINTREE 85, MASSACHUSETTS

JEWELOX • JEWEL EMERY • JEWEL GARNET • JEWELITE • JEWEL FLINT • NEW PROCESS

BIRMINGHAM ASSOCIATION UNDERTAKES EDUCATIONAL PROGRAM TO PROMOTE SOUTHERN PROGRESS

Holding that the greatest market for Southern goods is in the South, and that development of this big market is contingent upon a marketing analysis from the standpoint of purchasers, the Purchasing Agents Association of Birmingham, Ala., has undertaken an educational program which it is felt will be of great economic benefit to the district.

President George L. Wilson cited a statement by Dr. Howard Leslie, Harvard University professor of marketing, to the effect that "One problem after the war is that of how to overcome the 'procurement illiteracy' characteristic of so many manufacturers." This problem is held to be more pronounced in the South where procurement is somewhat underdeveloped as compared with some other areas. Mr. Wilson feels that the association's educational program will overcome impediments to greater progress and make the entire district more purchase-minded.

The war has greatly emphasized the value of intelligent purchasing, he states. The Purchasing department stands between the producer and the consumer and the Government. Restrictions to open market buying, shortages, limitations and all of the controls found necessary to direct the flow of materials have to be sifted through Purchasing to effect procurement for war and essential civilian production.

Likewise, in the postwar period, Mr. Wilson declares that purchasing agents will have the task of carrying on procurement for industry and Government. Adjustments will have to be made on the basis of the fundamental measure of value known as price. This, plus quality and service, make for prime considerations. In addition, there will be a marked introduction of new products and new materials to select from.

The Birmingham Association recently mapped out a plan to cooperate with the Committee for Economic Development, which embraces disposal of Government surpluses, cancellation of war contracts, and, demobilization of wartime controls. This was followed by a survey of factors influencing availability and purchases of Southeast manufactured products. This plan received nationwide recognition in national magazines and business papers. It has since been reprinted by the Birmingham Chamber of Commerce and will be used by the Birmingham District Industrial Development Corporation, as information on prospective new processing opportunities in the Birmingham district.

1 1 1

CENTRAL NEW YORK ASSOCIATION VISITS SAVAGE ARMS PLANT

Members of the Purchasing Agents Association of Syracuse & Central New York had the pleasure of a plant visitation at the Savage Arms Corporation, Utica, N. Y., September 27th, preceding their regular dinner meeting. The latter was given over to an informal discussion of commodities.



OVER A HALF CENTURY OF PRACTICAL

FIELD TESTS . . .

in every type of electrical
equipment from generators
to wall switches!

Can you use the services of an expert with 50 years' experience in testing, developing and specifying insulating materials?

Then specify the Westinghouse line of "Tuffernell" Insulating Materials. They're the result of *fifty years of field tests* with every type of electrical equipment.

This Westinghouse experience with all conceivable types of insulating materials has built up an authoritative file of exact application data. All of it is made available to you through Westinghouse Insulation Specialists. Call on them for help in your insulating problems.

Valuable material from this "insulation know-how" is now made available to you in the new Insulation Sample Book. This simplifies selection of varnishes, tapes, fabrics and papers *with actual samples*. Copies are available through your nearest Westinghouse distributor. Ask for B-3322. Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa., Dept. 7-N.

J-06358

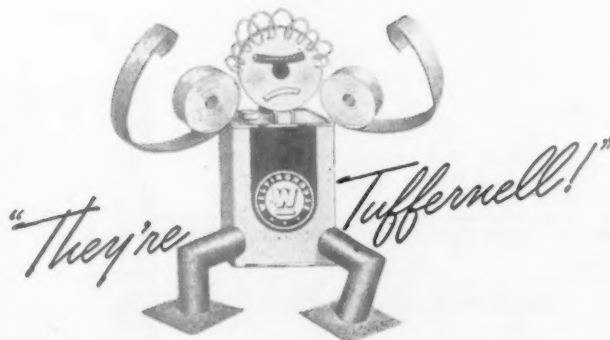


Hang up this new Insulation Sample Book for handy reference. It simplifies selection, ordering and application of Micas, tapes, fabrics and papers.



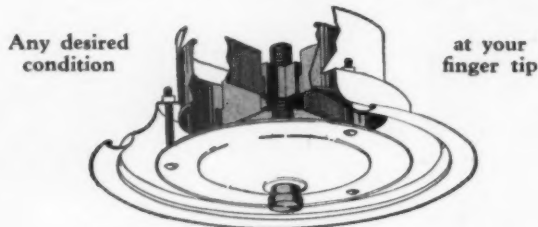
Westinghouse
PLANTS IN 25 CITIES . . . OFFICES EVERYWHERE

INSULATING MATERIALS



KNO-DRAFT

PROVIDES MAXIMUM EFFICIENCY THROUGH
CONTROLLED AIR DIFFUSION



KNO-DRAFT Type K Adjustable Air
Diffuser with Type D Volume Damper.
Patented.

All Kno-Draft Air Diffusers are also equipped with *air direction* adjustment to suit seasonal or individual requirements. Their engineered design insures more effective room air mixing, more uniform room temperature and controlled, noiseless, draftless air diffusion at low cost.

Write for descriptive folder F.

W. B. CONNOR ENGINEERING CORP.

114 East 32nd Street



New York 16, N. Y.

UNIVERSITY OF CINCINNATI PURCHASING COURSE

Course in Industrial Purchasing and Procurement has been scheduled in the 1944-45 program of the University of Cincinnati Evening College, Cincinnati, Ohio. The course is in charge of Gilbert W. Riches, Assistant Purchasing Agent at the Philip Carey Manufacturing Co., and covers such subjects as functions of the Purchasing Department, organization, duties of the procurement officer, purchasing procedure, quality and quantity control, inspection, price policies, sources of supply, etc.

Looking to the reconversion from war-time to peacetime production there will be a number of courses in addition to the regular 200 courses in commerce, engineering, liberal arts, and applied arts. They are Current Monetary Problems and Fiscal Policies, Reconversion and Postwar Management Problems, War and Postwar Sales Management and Marketing Planning, and Political and Military Problems of Contemporary Russia. The classes started the week of September 25.

1 1 1

"REVIEW OF THE NEWS" MEMPHIS

"Review of the News" was the subject of an interesting address before the first fall meeting of the Memphis Association of Purchasing Agents at Hotel Gayoso, Memphis. W. C. Teague, editorial writer and news commentator interpreted the headline news in the European and Japanese war theatre. He was introduced by Larry Smith, program chairman.

Following his talk, W. E. Rier, president, (Rotary Lift Co.) surprised the group with a special entertainment in the form of "Community Singing." Two of the members, E. M. Almy, National Fireworks, and Newton C. Wilson, Riechman-Crosby Co. vice-president, were the pianists. Old fashioned songs were featured in which all took part, while steins of beer added to the occasion.

A short business meeting was held, with Mr. Rier announcing that the Reception and Acquaintance committees will be combined with the membership committee, all members to be intact, but Max Wells, Dilworth Co. will act as general chairman. A District Council Meeting of National Directors of the Seventh District was held September 29-30 at Hotel Peabody.

1 1 1

NORTHERN CALIFORNIA ASSOCIATION HAS BUSY MONTH

Dr. Peter Conmy, librarian, City of Oakland, and Grand Trustee N.S.G.W., talked on "Admission Day" at the September 5th luncheon meeting of the Oakland Group of the Purchasing Agents Association of Northern California, in Hotel Leamington, Oakland. September 12th, C. Frank Pratt, engineer and inventor, addressed the group on "Miracles of Tomorrow," and the September 26th meet-

(Continued on page 198)



ON CLEANING FOR BUSY PURCHASING AGENTS

... Combating HIGH Costs

is a production problem likely to confront you on peacetime work. On a majority of products, CLEANING, however performed, is an **ESSENTIAL** operation and a cost factor of extreme importance particularly where products are manufactured in volume.

Important Savings!

It is in connection with CLEANING or related operations that many opportunities exist for LOWERING unit costs and where war-tested Oakite techniques and newly developed Oakite materials can be of substantial help to you. And there is an easy, simple way for you to check and examine the possible application of these time-and-money-saving materials and methods to your work.

Oakite Service is Free!

Near you is one of our Technical Service Representatives. Have a talk with him. You will find him anxious to assist, give you the full benefit of his wide, successful experience in all phases of production cleaning. Since his services involve no cost or obligation, won't you ask us to have him call soon?

OAKITE PRODUCTS, INC.
54 Thomas St., NEW YORK 6, N. Y.
Technical Service Representatives Located in All
Principal Cities of the United States and Canada

OAKITE
Specialized
CLEANING
MATERIALS...METHODS
SERVICE

Buy Bonds for Victory!

Cold-Formed Stainless Steel in the U.S.A.



Watch case (bezel) of Rustless stainless steel, 18-8, Type 304, for the armed services. Made by blanking and cold-forming by the Keystone Watch Case Division.

THIS is one of the first all-stainless watch cases to be made successfully in the United States, proving that when necessary we can equal or exceed the best foreign techniques. The steel is Rustless 18-8, Type 304. Naturally, it is extremely corrosion-resistant clear through; no amount of wear can change that. It was readily fabricated by severe cold-forming operations, and was easily given an attractive, silvery-bright finish. Its hardness resists deformation and denting. And — very important for a watch — it is non-magnetic, even after cold-working.

This success story goes back a number of years, because Rustless was a pioneer in working out the proper metallurgical formulas and physical conditions for cold-forming 18-8 stainless, starting with wire for cold-upset screws, and soon supplying material for other severe operations such as blanking and spinning.

Type 304 is but one of many variations of 18-8 stainless. If you have a product requiring severe cold-heading or other cold-forming operations, get in touch with us. We know the proper ratios of constituents, correct temper, and what special coating should be supplied, if necessary. When war conditions made necessary the production of an all-American stainless steel watch case, we were ready. Have you a cold-forming problem in stainless? . . . Rustless Iron and Steel Corporation, Baltimore 13, Maryland.



Producing
STAINLESS STEELS
Exclusively

SALES OFFICES: BALTIMORE • BUFFALO
CHICAGO • CINCINNATI • CLEVELAND
DETROIT • LOS ANGELES • MILWAUKEE
NEW YORK • PHILADELPHIA • PITTSBURGH
ST. LOUIS • DISTRIBUTORS IN PRINCIPAL CITIES

FOUR FIGHTING FILES DO THE WORK OF FIVE



IN WAR, as in peace, Delta Files do extra work. Yes, 25% more on the average, in the same time with the same effort—proved by actual scientific tests. Four men working with Delta files can free a fifth to fight.

Delta Files cut deep and clean. The tiny precision-shaped teeth fight their way into the toughest metal. They work quicker—last longer.

Give your workmen full capacity tools—tools that do the work faster and better. Get top production with Delta, the fighting file.

DELTA FILES



DELTA FILE WORKS, Inc.

Philadelphia 37, Pa.

HOW MUCH DOES A FILE COST?

Don't mistake price for cost. A file that is priced low might actually cost more. But the file that works faster and better and keeps cutting long after other files are worn down is the least costly file of all. When you buy Delta files judge them by cost, not price.



"UNIVAN"

That Tough Steel



The "RHINO" of STEEL CASTINGS!

Perissodactyl to the naturalist is comparable with "UNIVAN" to steel castings users... A mighty tough animal... a mighty tough steel. Castings made from this fine-grained steel have proven in countless applications that they can absorb heavy shock and severe stresses with notable lack of fatigue. Where the going is tough specify "UNIVAN"—that tough steel. Make use, too, of Union's long experience in fabricating intricate designs up to 70,000 pounds.



For Long Life with Economy
Specify "UNIVAN", that Tough Steel

UNION STEEL CASTINGS

DIVISION OF
BLAW-KNOX CO.
PITTSBURGH, PA.

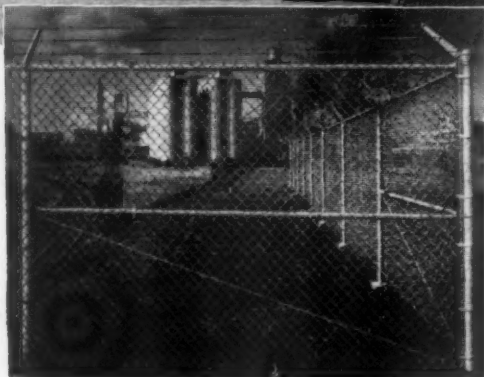
MAKERS OF Driving Wheel Centers, Locomotive Frames, Pump Casings, Vault Doors and Frames, Annealing Boxes, Spindles, Coupling Boxes, Open Hearth Charging Boxes, Gear Blanks—and other Castings for Steel Mills and General Industry.

PAGE FENCE *-Since 1883*

• AMERICA'S FIRST WIRE FENCE •



*Maybe You
CAN
Have a
Fence*



● If you have been gambling on the safety of lives and the security of property because of the lack of fence protection, don't continue the risk. If you have proper priorities you can have a sturdy Page Chain Link Fence to guard your property. Or if you now have this safeguard, have it inspected and reconditioned if necessary. Consult the long-experienced, responsible Page Fence firm near you about all fence plans, including styles, engineering, erecting, repairs and moving. No obligation for cost estimates. Write us and we will send FENCE FACTS and name of the Association member nearest you. Address PAGE FENCE ASSOCIATION, Headquarters: Monessen, Pennsylvania.

PRODUCT OF PAGE STEEL & WIRE DIVISION—AMERICAN CHAIN & CABLE COMPANY, INC., BRIDGEPORT, CONN.

(Continued from page 194)

ing was given over to a forum meeting conducted by the New Products Committee.

On September 7th, a pilot of the Air Transport Command addressed the luncheon meeting of the San Francisco group at a luncheon meeting in the Palace Hotel, San Francisco, and on September 14, H. C. Van Pelt, Assistant Special Agent in charge of the San Francisco Office, F. B. I., spoke on "The F. B. I. in the War Effort". "What About China" was the subject of a talk by Julean Arnold, China American Counsel for Commerce and Industry, at the September 28 luncheon meeting.

At the association's regular monthly meeting September 21 at the Hotel St. Francis, San Francisco, Raymond P. Cronin, War Correspondent who was at Bataan and Corregidor, and spent 21 months in a Japanese Concentration Camp, gave a most interesting talk on "The Asiatic War."

1 1 1

SWANTON TO ADDRESS READING ASSOCIATION

R. C. Swanton, president of the National Association, will be guest speaker at the November meeting of the Purchasing Agents Association of Reading, Pa., according to announcement made at the September meeting of the group held in the Iris Club of Wyomissing.

President Thompson of the local association, incident to the resignation of A. M. Johnston, who has assumed duties as general office manager, Reading Plant of the American Chain & Cable Co., announced new committees as follows: Executive committee chairman, B. F. Finch, Vanity Fair Co., assisted by Olin Evans, Community General Hospital, and W. D. Eaches, Berkshire Knitting Mills, Public Relations, Harry S. Kaufmann, Narrow Fabric Co., assisted by S. L. Henry, American Chain & Cable Co., and Gene Brown, Brown Engineering Co. Mr. Henry, by the way, succeeds Mr. Johnston as Purchasing Agent at the Reading Plant of the American Chain & Cable Co., and has been accepted as an active member of the local association.

1 1 1

LEHIGH VALLEY ASSOCIATION HOLDS FIRST FALL MEETING

"Keeping America in a Humorous Mood" was the theme of a talk by Con McCole, mayor of Wilkes-Barre, Pa., and an outstanding humorist, at the September 26th dinner meeting of the Purchasing Agents Association of the Lehigh Valley, held in the Northampton County Country Club. This was the first fall meeting of the association, and 163 guests were in attendance. The dinner meeting was preceded by an afternoon of golf. Another humorous speaker was P. J. MacNamara, (Peter Mac), of the Lehigh Foundries. Among the guests were Mayor J. J. O'Donnell of Phillipsburg, N. J., and county commissioner John G. Sandt, and burgess D. Miller.

(Continued on page 204)

WHY THE *Staples* EXPANSION REAMER HAS LONGER LIFE

The Staples Expansion Reamer greatly outwears competitive reamers because after expansion it will still produce holes of precision accuracy without regrinding!

This saving of tool life results from the patented, exclusive Staples method of expansion. The full length of the tool tip is expanded outward uniformly. Each expansion further tilts the blades, presenting in effect a new cutting edge and reducing regrinding to a minimum.

Staples Precision Carboloy-Tipped Expansion Reamers and other cutting tools have been used for

years in the aircraft engine industry, where utmost accuracy is a prime requisite. Now, due to increased production, we can offer these tools affording aircraft accuracy to other industries which appreciate the many advantages of using today's highest quality cutting tools.

Send for our Catalog No. 44, describing Staples Tools, and containing comprehensive data on reamer usage and design.

STAPLES TOOL & ENGINEERING COMPANY
CINCINNATI 25, OHIO

STAPLES EXPANSION REAMER
(PATENTED)

NO REGRINDING AFTER EXPANSION

Staples CARBOLOY-TIPPED CIRCULAR CUTTING TOOLS

REAMERS • CORE DRILLS • SPOT FACERS • COUNTERBORES • END MILLS •
SHELL END MILLS • ALSO A COMPLETE LINE OF CIRCULAR SPECIAL TOOLS.

DISTRIBUTORS: The Cameron & Barkley Co., Charleston, S. C.; Jacksonville, Fla.; Tampa, Fla.; Miami, Fla.; G. F. Cotter Supply Co., Houston, Texas; J. E. Dilworth Co., Memphis, Tenn.; The John C. Eide Co., Minneapolis, Minn.; Empire Machinery & Supply Corp., Norfolk, Va.; Fuchs Machinery & Supply Co., Omaha, Neb.; General Carbides Company, Newark, N. J.; Machinery Sales & Supply Co., Dallas, Texas; Marshall Supply & Equipment Co., Tulsa, Okla.; The Mine and Smelter Supply Co., Denver, Colo.; Murray-Baker-Frederic, Inc., New Orleans, La.; A. N. Nelson, Inc., Brooklyn, N. Y.; Sager-Spuck Supply Co., Inc., Albany, N. Y.; Screw Machine Supply Co., Chicago, Ill.; Strong, Carlisle & Hammond Co., Cleveland, Ohio; Syracuse Supply Co., Syracuse, N. Y.; Sterling Supply Co., Detroit, Mich.; Muskegon Hdwe. & Supply Co., Muskegon, Mich.; Harold W. Kimball Co., Waterville, Me.; White Supply Co., Waterbury, Conn.; J. E. Hazeltine & Co., Portland Ore.; The L. A. Benson Co., Inc., Baltimore, Md.; El Paso Saw & Belting Co., El Paso, Texas; Quinn & Quinn, Birmingham, Ala.

TEMPERATURE EXTREMES



REX-FLEX

**Stainless Steel Flexible
Tubing likes either end
of the thermometer**

THE ability of REX-FLEX to withstand the effects of extreme heat or cold has enabled it to be used successfully where other types of tubing have not been entirely satisfactory. REX-FLEX has the corrosion resistance of stainless steel which permits it to handle most types of gases and liquids.

Because of its lighter weight, pressure tightness and extreme flexibility REX-FLEX has been widely used in aircraft. The experience gained in developing stainless steel flexible tubing should be helpful in solving your problem of conducting liquids and gases. Chicago Metal Hose Corporation engineers will be glad to help you adapt this versatile, flexible metal hose to your requirements, or suggest the type best suited. Write for complete information today.

Flexible Metal Hose for Every Industrial Use

CHICAGO METAL HOSE CORPORATION
MAYWOOD, ILLINOIS

Plants: Maywood and Elgin, Ill.



(Continued from page 198)

Early of Wilson Borough, who welcomed the guests.

Three new members were elected, namely, Leslie C. Hankinson of the American Saw Mill Machinery Co., Hackettstown; R. L. McLaughlin, Locust Coal Co., Shenandoah; and Frank Marcon, Duggan & Marcon Inc., Bethlehem.

1 1 1

HAROLD W. TRUCHSESS

Harold W. Truchsess, Purchasing Agent, Alpha Portland Cement Co., Allentown, Pa., and member of the board of directors of the Lehigh Valley Purchasing Agents Association, passed away Friday, October 13, following a stroke suffered while at work. He was a veteran of World War I.

1 1 1

MEMPHIS WOMEN'S CLUB APPOINTS COMMITTEES

Appointments of committees for the year was the first official act of the newly elected president, Mary Speltz, Memphis Plywood Corp. at the October meeting of the Memphis Women's Purchasing Agents at a dinner at Hotel Gayoso. The committees are:

Program: Rubye Wright, City Health Department, chairman; Martha Jane Baker, Kennedy-General Hospital and Mrs. Bernice O'Kane, 346th Post Engineers, 4th Ferrying Group.

Membership: Mrs. Lois Boggans, chairman, Kennedy-General Hospital; Roma Byler, Kennedy-General Hospital and Jimmy Harwood, N. O. Nelson Co.

Arrangements: Mrs. Sue Rauch, Phoenix Rubber Co., chairman; Bonnie Dorris, Southern Cotton Oil Co.

Registration: Magdalena Borgers, Crippled Adults Hospital, chairman; LaVee Wyatt.

The group will also have a Sick-Committee, with Miss Francis Wheeler, Kennedy General Hospital, as chairman, and a Benevolence Committee, which will make plans for aiding war drives and doing war work, composed of Mrs. Juanita Williams, U. S. Engineers, chairman, and Armide Bonds. Other chairmen will be named as needed.

Following the announcement of committees, Miss Rubye Wright, program chairman introduced Harry Shannon, Riechman-Crosby Co., who gave a lecture on "Drills and their Uses". It is the aim of the Women's Purchasing Agents to have educational programs of benefit to their work, also assist with local and civic affairs in the interest of War Bond Drives, and aid the war effort.

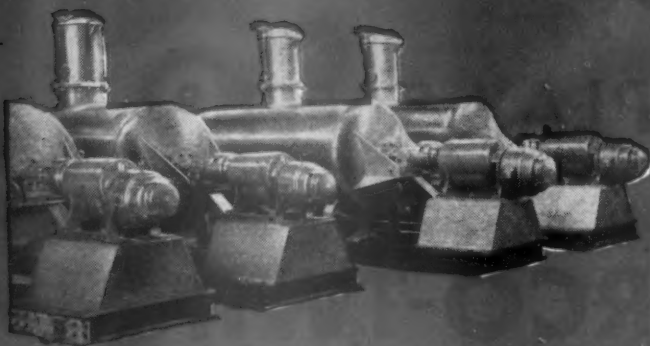
1 1 1

COMMITTEE FOR ECONOMIC DEVELOPMENT CHICAGO MEETING

Charles R. White, regional manager of the seventh Federal Reserve District, and Chicago representative of the Committee for Economic Development, was chief guest speaker at the October 12 meeting of the Purchasing Agents As-

(Continued on page 204)

**more
gearhead
motors
in use today
bear
the
MASTER
name
than all
other
makes
...COMBINED**



THE MASTER ELECTRIC COMPANY • DAYTON 1, OHIO





DON'T LET TANGLED HOSE
REDUCE SAFETY AND EFFICIENCY

PLAY SAFE! *Specify* **AIRCO-TWIN**

THE MODERN "2 IN 1" HOSE
FOR WELDING AND CUTTING



INCREASE the safety and efficiency of your welding and cutting operations by using Airco-Twin Hose. This modern hose is actually two separate lines molded into a single flexible unit.

Airco-Twin Hose is strong and will withstand pressures many times greater than those required for welding and cutting operations. For easy identification in coupling, the acetylene line is red and the oxygen line is black.

OPERATORS PREFER AIRCO-TWIN HOSE BECAUSE:

- (1) It does not kink as do individual lines of hose.
- (2) It can easily be shifted about—less chance of entangling with other objects.
- (3) Compact—it is easier to keep out of the way of hot slag and sparks.
- (4) Saves time required to tape up individual hose lengths.

A further description of Airco-Twin Hose is available in our folder ADC 609-A. It can be obtained from the nearest Airco office, or if you prefer, address your inquiry to Department PR, at the New York office.

★ BUY UNITED STATES WAR BONDS ★



AIR REDUCTION

General Offices: 60 EAST 42nd STREET, NEW YORK 17, N. Y.

In Texas: MAGNOLIA AIRCO GAS PRODUCTS CO. • General Offices: HOUSTON 1, TEXAS

Offices in all Principal Cities



*Gun Barrel
Brush Cover . . .
used in Naval Ordnance*

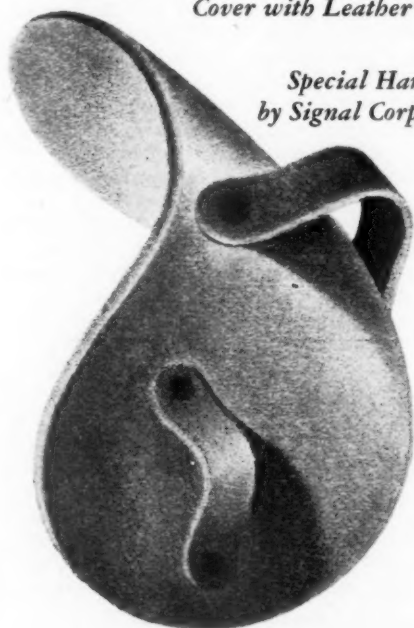


*Earphone Head-Band Cover—
covers and positions spring steel
band and wires*

Leather can Take it!



*Solenoid Protecting
Cover with Leather ties*



*Special Hand Pad used
by Signal Corps in laying out
or handling
cable*

Leather is tough and adaptable. And for thousands of mechanical applications, both standard and special, it is far superior in a variety of ways to any other material.

But leather in itself is not enough. It must be correctly tanned and conditioned . . . properly formed, moulded, hardened, lubricated or stretched . . . to best solve the specific problems of the job at hand.

It is the ability to *know how* . . . based on 65 years of specialization and research . . . that has established Chicago Rawhide products as a standard of quality and performance all over the world.

CHICAGO RAWHIDE MANUFACTURING CO.

Established 1878

Manufacturers of Leather and Synthetic Rubber Products for Mechanical Application

1301 ELSTON AVENUE • CHICAGO, ILLINOIS

DETROIT • NEW YORK • PHILADELPHIA • LOS ANGELES • PITTSBURGH
BOSTON • PEORIA • SYRACUSE • CLEVELAND • CINCINNATI



BUILDING BOEING'S B-29 TAKES GOOD WORKMANSHIP AND GOOD TOOLS . . .



Now, with
Two Service Stars

THE L. S. STARRETT CO., ATHOL, MASSACHUSETTS, U. S. A.

World's Greatest Toolmakers

STARRETT

PRECISION TOOLS • DIAL INDICATORS • GROUND FLAT STOCK
HACKSAWS • METAL CUTTING BANDSAWS • STEEL TAPES

(Continued from page 200)

sociation of Chicago, held in the Hotel Sherman. Mr. White explained the ramifications, the intents and purposes of the C. E. D. as well as its plans for national business, and the relinquishment of government controls and taxes in the post war era. Two other speakers on timely subjects were Fred T. Adams and E. N. Osterberg, both of whom are associated with the Stewart-Warner Corporation. Mr. Adams spoke on "Cancellation of War Contracts", and Mr. Osterberg, the company's Purchasing Agent, addressed the meeting on "Disposal of Government-Owned Surpluses."

1 1 1

PRACTICAL PUBLICITY FOR DETROIT ASSOCIATION

"First Automobiles Will Use Burlap" is the headline of news article in the *New York Journal of Commerce*, originating with the Purchasing Agents Association of Detroit. "Present plans for the first civilian automobiles call for the use of burlap in automobile seats and back springs, the Purchasing Agents Association of Detroit asserted after an informal survey," states the article.

"The opinion of buyers for this class of material is that burlap, while scarce, will be furnished in sufficient quantities to enable producers of springs to go along with major parts for cars. At the present time no plans are being contemplated for substitute materials."

1 1 1

F. B. I. IN WARTIME NEW ORLEANS

Guest speaker at the October 9th meeting of the Purchasing Agents of New Orleans which was held in the Jung Hotel, was A. Paul Kitchin, Special Agent in Charge, New Orleans Office, Federal Bureau of Investigation. His subject was "Operations of the F. B. I. in Wartime." The secretary reports the death of N. B. Rhoads, who was Purchasing Agent for the Board of Commissioners, Port of New Orleans for 18 years. Mr. Rhoads, who was known as "Dusty" to his friends, organized the New Orleans association in 1924, and served as president in 1924, 1927, and 1929, and was national vice-president for three terms, and served two terms as national director. The applications of three new members were approved, namely, Roy E. Hurd, Director of Purchases, J. & L. Steel Barrel Co., Henry Boh, Purchasing Agent, Boh Bros. Construction Co., and R. N. Bell, Purchasing Agent, Reserve Rubber Co., Baton Rouge, La. Eight new members were elected at the previous regular monthly meeting.

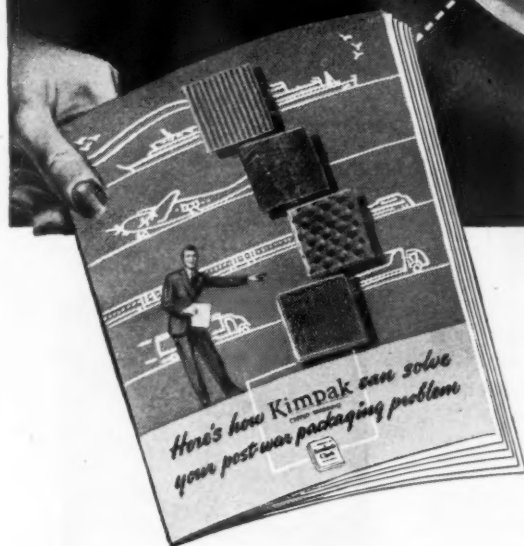
1 1 1

FILM ON LUMBER PRODUCTION AT METROPOLITAN BUYERS CLUB

C. M. Cooke of the Weyerhaeuser Timber Co., was guest speaker at the October 10 meeting of the Metropolitan Purchasers' Assistants Club, held in Midston House, New York City, following a brief talk with a color picture show-

(Continued on page 208)

LOOKING AHEAD?



FREE BOOK helps plan packaging of post-war products

New, streamlined packaging methods, developed for shipping war materiel, will have valuable application to your peacetime products. Familiarize yourself with these new packaging techniques—send for the KIMPAK* “post-war packaging book”.

Right now, KIMPAK is mighty busy conveying military supplies to our fighting forces. But after victory KIMPAK will lighten, safeguard and beautify the products of peace. It'll pay you to learn more *now* about this amazingly resilient, compact cushion for products going places. Absorbs jars, cuts packaging time, reduces package size. Various types to protect anything—from pianos to jewelry. Get the whole story from this fascinating book. And for a post-war packaging *plan*, call, write or wire for a KIMPAK man.

*KIMPAK (trade-mark) means Kimberly-Clark Wadding

Kimpak

REG. U.S. PAT. OFF. & FOREIGN COUNTRIES

CREPED WADDING

A PRODUCT OF
**Kimberly
Clark**
RESEARCH

KIMBERLY-CLARK CORPORATION
Creped Wadding Division, Neenah, Wisconsin

P-1144

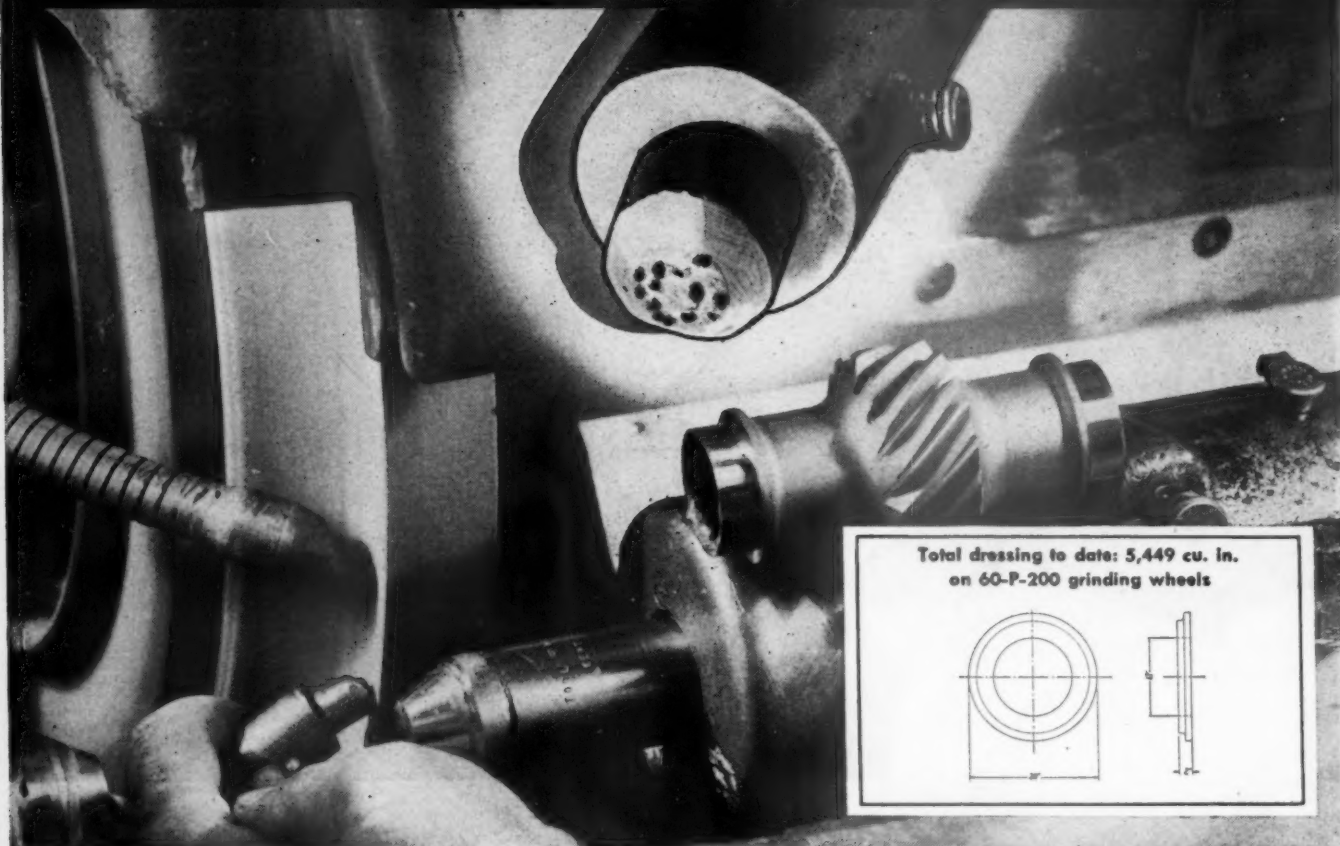
Send copy of FREE KIMPAK BOOK on post-war packaging methods to

Name

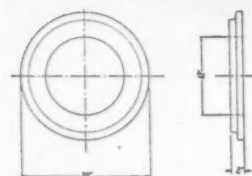
Firm

Address

TAKING IT ON THE NOSE for 90 DAYS *... and Still Going Strong!*



Total dressing to date: 5,449 cu. in.
on 60-P-200 grinding wheels



In continuous use for 90 days in the plant of a well-known midwestern aircraft engine plant, dressing the face and recess in a 60-P-200 grinding wheel—that's the record of the No. 2-B diamond-impregnated Carboloy Dresser shown above. Taking it "on the nose" for 3 months and still going strong—still plenty of diamonds left for additional service, after dressing a total of 5,449 cu. in. of wheel stock.

Carboloy Diamond Dressers are especially designed for unusually long periods of service on a wide range of work—the "tough" jobs as well as the "easy" ones. Loaded from base to "peak" with high quality diamond particles permanently held in a Carboloy matrix, these dressers require no remountings and provide layer upon layer of diamond cutting surfaces. Just a quarter turn daily of dresser in holder—plus an occasional 2- to 5-minute reconditioning—and the Carboloy Dresser keeps working throughout an extremely long period of profitable life. Try it once and you'll never go back to "temperamental" costly single diamonds.

CARBOLOY COMPANY, Inc.

11191 EAST 8 MILE AVENUE • DETROIT 32, MICHIGAN

Birmingham - Chicago - Cleveland - Los Angeles - Milwaukee - Newark - Philadelphia - Pittsburgh -
Thomaston, Conn.



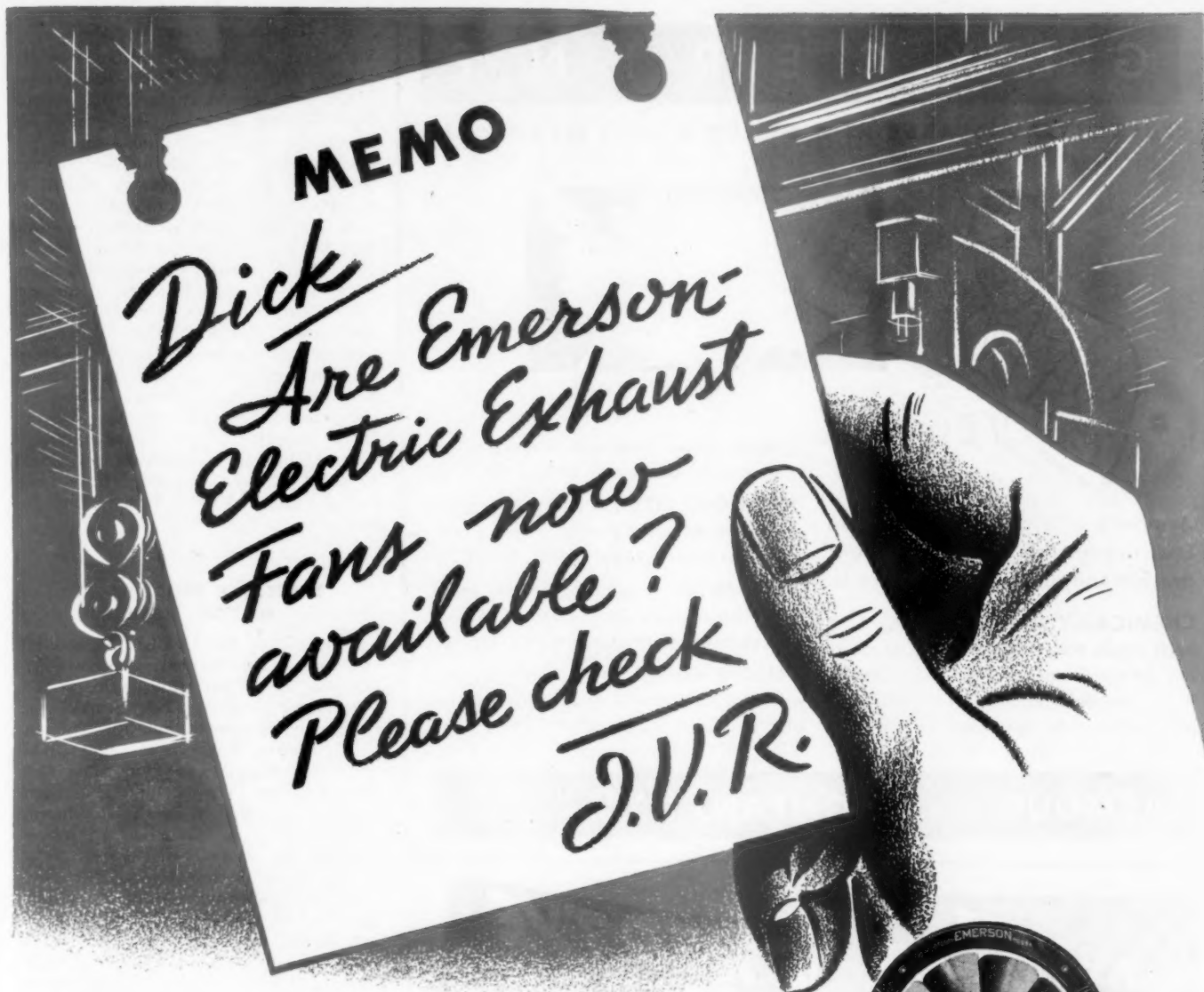
WRITE
FOR
CATALOG
DR-100

**DIAMOND
DRESSERS**

*Another
USE FOR
CARBIDES*

CARBOLoy CEMENTED
CARBIDE
DIAMOND DRESSERS
IMPREGNATED

*For
GENERAL
USE ON
GRINDING
WHEELS*



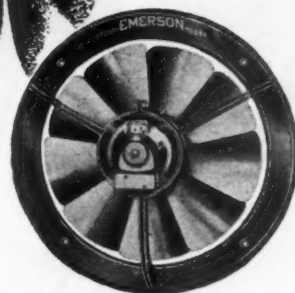
If you've long planned to remedy that bad-air condition, but pigeon-holed the project temporarily because of war-time restrictions, investigate now! The day when you can install Emerson-Electric Exhaust Fans may be nearer than you think.

Production of these precision-built, powerful air movers is already under way. Their efficiency and dependability reflect Emerson-Electric's 54 years of fan manufacturing skill augmented by new experience gained in the building of highly technical equipment and motors for combat aircraft.

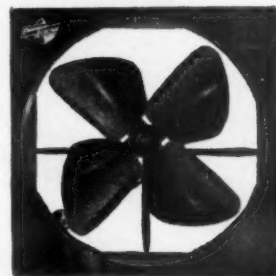


Write for Bulletins X4559 and X4566 to obtain full information on all types of Emerson-Electric Exhaust Fans.

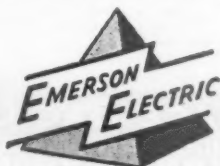
THE EMERSON ELECTRIC MFG. CO., ST. LOUIS 3, MO.
Branches: New York • Chicago • Detroit • Los Angeles • Davenport



Emerson-Electric direct-drive and belt-drive Exhaust Fans are produced in sizes from 12 to 48 inches delivering up to 21,100 cubic feet of air per minute.



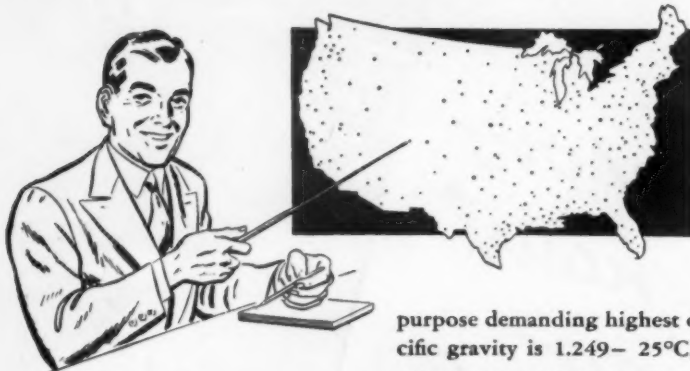
EMERSON
MOTORS • FANS



ELECTRIC
APPLIANCES

GLYCERINE

QUICKLY AVAILABLE AT A STOCK POINT NEAR YOU!



Armour's 332 stock points mean fast, dependable service for your present and future glycerine needs.

CHEMICALLY PURE or U. S. P. . . . A high grade, water-white glycerine meeting the requirements of the United States Pharmacopoeia. Suitable for use in foods, pharmaceuticals, cosmetics or for any

purpose demanding highest quality. Specific gravity is 1.249- 25°C./25°C.

HIGH GRAVITY... A pale yellow glycerine for industrial purposes with a specific gravity of 1.262- 15.5°C./15.5°C.

DYNAMITE... A yellow glycerine made especially for the explosives trade. It has a specific gravity of 1.262- 15.5°C./15.5°C.

YELLOW DISTILLED . . . A yellow glycerine for industrial purposes with a specific gravity of 1.259- 15.5°C./15.5°C.

ARMOUR AND COMPANY 1355 WEST 31ST STREET
CHICAGO 9, ILLINOIS



For light or heavy duty service Darnell Casters and Wheels are made for a long life of trouble-free usage.

DARNELL CORP. LTD.
LONG BEACH 4, CALIFORNIA

60 WALKER ST., NEW YORK 13, N.Y.
36 N. CLINTON, CHICAGO 6, ILL.



**On the Spot
WHEN
NEEDED!**

Make sure that small parts, accessories and replacements are on the spot when needed by putting them in a Chase Red-Tye Parts bag and attaching them right to the product. Avoid irritation and loss of time caused by overlooked or mislaid parts.

Chase Red-Tye Parts bags are available in many types and sizes . . . with or without tags or envelopes attached for letter, invoice or instruction sheet.

Write for samples and prices. Also inquire about Chase Red-Tye mailing bags . . . for the quick, safe delivery of small replacement parts.

CHASE BAG CO.
302 EAST PITTSBURGH AVE., MILWAUKEE, WIS.
ONE OF THIRTEEN GREAT FACTORIES

(Continued from page 204)

ing woods and mill operations in the West. Mr. Cooke stated that lumber is the only natural resource that renews itself, saying that the lumbermen are now active in reforestation projects and the reseeding and planting of cut-over lands, and that with lumber treated as a crop, the country can look forward to a continued supply of lumber. He said that trees should be cut when they get ripe, that is when they reach the point where growth stops, or where decay and other destructive factors are faster than tree growth. The applications of two new members were approved, namely Sanford S. Sanberg, and Gifford F. Ramsey, both of the Combustion Engineering Company. Robert O. Condit, American Oil & Supply Co., was appointed treasurer to fill the unexpired term of Kenneth M. Reed who was appointed Purchasing Agent for the Mutual Benefit Life Insurance Co., Newark, N. J.

1 1 1

THREE-STAR PROGRAM AT SEATTLE, WASH.

Featured on the October 12 meeting program of the Purchasing Agents Association of Washington, held at the Washington Athletic Club, Seattle, was a talk and demonstration by Professor E. B. Barker, Supervisor, Light Metal Alloy Foundry, Washington State College, Pullman, Wash., on "The Light Metals as Considered by the Purchasing Department." A sound-color movie, "Magnesium from Sea Water" was shown by a representative of the Dow Chemical Company. Another speaker was Fred H. Luithle, District Purchasing Agent, Westinghouse Electric & Supply Company, who spoke on "Quick-Freezing Units—Post War". Preceding the evening meeting there was a "Priorities—Up-to-Date" forum, with Carl C. Nissler, analyst in the Seattle office of W. P. B. as co-ordinator, and W. D. Anderson, chairman of the association's educational committee, presiding.

1 1 1

HEINRITZ ADDRESSES OFFICE EQUIPMENT DINNER CLUB

Stuart F. Heinritz, editor of PURCHASING Magazine, was the principal speaker at a meeting of the Office Equipment Dinner Club at the Advertising Club, 23 Park Avenue, New York, October 9th. Subject of his address was "Purchasing for Victory in War and in Peace."

1 1 1

AVAILABLE SURPLUS PROPERTY FORT WORTH

Surplus property available through the Procurement Division, and the operations of the Purchase and Supply Division and the purchasing procedure, were explained by Ray Pittman, Chief, Merchandising Division, and C. W. Barnes, Chief, Purchase & Supply Division, at the September 19 meeting of the Purchasing Agents Association of Fort Worth, Texas. The program was arranged through Hamilton

(Continued on page 210)

THE BATTERY PICKED BY ENGINEERS

KATHANODE

DURAPOR (RUBBER) SEPARATOR

The most successful, durable and long-lived separator.

PERFORATED RUBBER ENVELOPE

Holds the glass mat in place, completing a tight Assembly.

SPUN GLASS MAT

Exclusive Gould smoothed layer design for retaining active material.

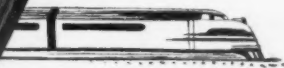
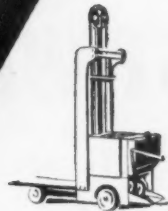
KATHANODE POSITIVE GRID

Long-lived, high electrical conductivity with unique design.



GLASSKLAD

since 1925



The Gould Kathanode is not a new battery. Its basic principle of spun glass protection was first introduced in America by Gould twenty years ago, and it continues to be the outstanding battery of its type.

Behind today's Gould Kathanode are two decades of constant research and improvement... two decades of actual operation in field service... two decades of unqualified success.

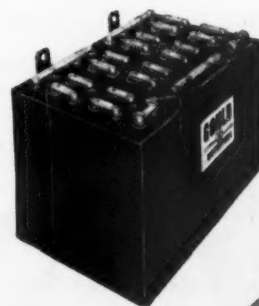


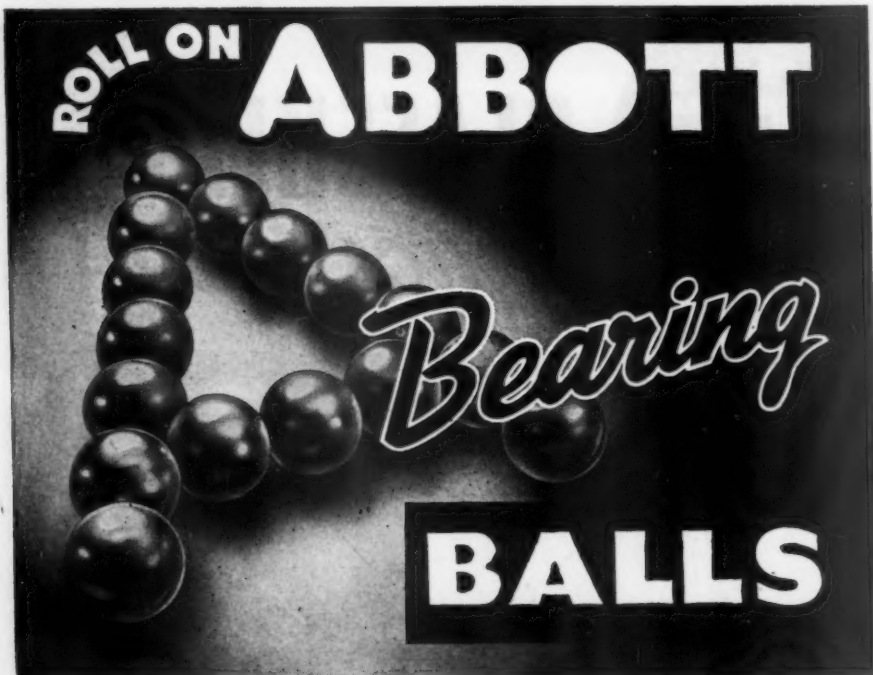
FOR EXCELLENCE IN STORAGE BATTERY
PRODUCTION AT DEPEW PLANT

GOULD

GOULD STORAGE BATTERY CORPORATION, Depew, N. Y.
Factories: Atlanta • Chicago • Dallas • Depew • Leavenworth •
Los Angeles • North Bergen • Rock Island • St. Paul • Sioux City • Zanesville

Write Dept. 411
for Catalog 100
on Kathanode
Glassklad Bat-
teries for Indus-
trial Trucks and
Tractors.





IN POST-WAR PLANS, too!

Specify "ABBOTT BEARING BALLS!"

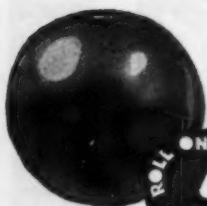
Around these unseen parts will be built the successful new ideas, now in the blueprint stage, for tomorrow's vast markets.

These load-carrying jobs of the future will demand uninterrupted performance — the performance assured with ABBOTT BEARING BALLS in the assemblies.

The swing to "ABBOTT" is the result of consistently high standards of quality in materials and workmanship. It's the ABBOTT 35th year as bearing ball manufacturers. All types of industries know when they specify "ABBOTT BEARING BALLS" their load-carrying problems are solved — and successfully.

You, too, may confidently specify "ABBOTT BEARING BALLS" to fulfill your every requirement in today's Post-War plans.

CARRY THE LOAD AS PLANNED.



ABBOTT *Bearing* **BALLS**
THE ABBOTT BALL COMPANY HARTFORD 10, CONN. U.S.A.

(Continued from page 208)

Morton, Regional Directory, Treasury Department Procurement Division, Dallas. The talks and discussions were followed by the showing of a War Department moving picture "Army Air Forces Report."

1 1 1

SWANTON SPEAKS AT GRAND RAPIDS MEETING

President R. C. Swanton of the National Association was guest speaker at the dinner meeting of the Purchasing Agents Association of Grand Rapids, held in the Rowe Hotel, Grand Rapids. The meeting was attended by Purchasing Agents from Battle Creek, Lansing, Jackson and Kalamazoo. President Swanton declared that scare-buying of obsolete products and materials must be avoided when civilian production gets underway again. "We must buy only what we need and resist the temptation to scramble for the most we can get," he warned. "Scare-buying would postpone the introduction of the postwar models and products we have been dreaming about since the war started because manufacturers would have to overproduce obsolete prewar models just to meet demands of glutton buyers. Buying only what we need will enable manufacturers to get their post-war products into production at the earliest possible moment.

1 1 1 1

WINNIPEG ASSOCIATION OPENS FALL MEETINGS

Sixty percent of the membership were present at the regular monthly meeting of the Purchasing Agents Association of Winnipeg held in Moore's Restaurant, Winnipeg, Can., September 14th. Following an address by National Director Hallwood on Public Relations, a committee was appointed to study the subject and report at the November meeting. On September 22nd, 31 members and guests took part in the final official golf tournament. Basil Mainman of Hilton Bros. won the B. F. Goodrich cup for low net score, and was presented with the cup and a crystal and silver dish. The golf tournaments were under the direction of a committee headed by B. K. Sprung.

1 1 1

SURPLUS WAR MATERIALS AND CONTRACT TERMINATION—PORTLAND, ORE.

Three important subjects were presented at the September weekly meetings of the Purchasing Agents Association of Oregon held in the Heathman Hotel. September 18, M. B. Hill, Chief of the Surplus War Property Division of Reconstruction Finance Corp. was the guest speaker, telling about plans for disposal of surplus war material. On the 22nd Edward Eggen, Portland District Mileage Rationing Representative of O.P.A. spoke on "Transportation in Jeopardy." And on the 29th, Captain H. H. Person of the U. S. Army Engineer Corp., spoke on "Contract Termination" as it affects both the local and the

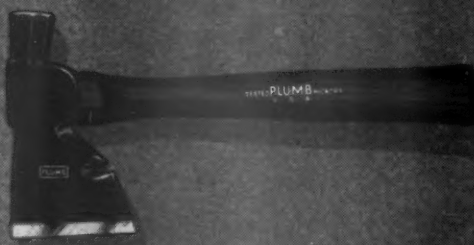
(Continued on page 214)

WHEN *SPEED* COMES EASY

Strong and swift the graceful greyhound covers distance with bullet-speed because the breeders developed fast-action as his foremost quality. Plumb tools, too, are made for fast action—to do your work quicker and better.

But Plumb quality goes beyond getting your work done faster. The hang, the solid single-piece head of unblemished steel, the easy-grip handle of selected hickory, are the features that make Plumb outstanding wherever fine tools are known. Fayette R. Plumb, Inc., Philadelphia 37, Pennsylvania.

PLUMB TOOLS ILLUSTRATED: Top to Bottom Nail Hammer, Ball Pein Hammer, Half Hatchet, Single Bit Michigan Axe.



Quality Comes *FIRST*
PLUMB
is *FIRST* in Quality

PLUMB

HAMMERS • HATCHETS • AXES • SLEDGES



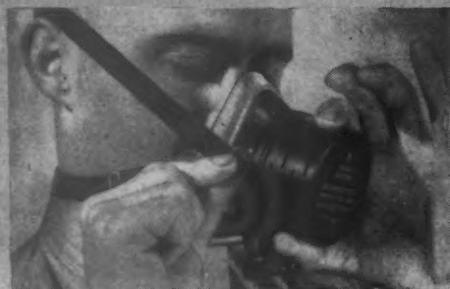
AO's R-1000 Is 7 Respirators in 1

Equipped with this respirator, a worker can be protected on more than a hundred different jobs that may endanger his lungs. Seven types of cartridges—all interchangeable—provide true all-around protection.

No other respirator offers the comfort and convenience of AO's R-1000... plus the economy of its 7-way interchangeability. For the full story of this respirator, and two other popular models, write for the new AO respirator folder. It also contains a helpful chart which recommends the proper respirator for 139 jobs that endanger the lungs.

American Optical
COMPANY
SOUTHBRIDGE, MASSACHUSETTS

Comfort & Safety Features



FITS ANY FACE Adaptability of the design, pliability of the rubber, and the smoothly rounded edges covered with a washable cotton facelet make it possible to fit this respirator to any face, safely and comfortably, without adjustment.



CHECK FOR PROPER FIT The R-1000 Respirator, fitted with any of the seven Dust or Chemical Cartridges, may be easily and quickly tested for positive fit on the wearer's face.



EXHALATION VALVE Basal valve assures complete expulsion of exhaled air, even when worker's head is down. Valve cannot stay open or fill with moisture. Dust cannot infiltrate.



INHALATION VALVE Positive, extra protection under all conditions. Holds rebreathing to minimum, keeps worker's efficiency high. Admits air at lightest intake of breath.

ENGINEERED FORGINGS

By

INTERSTATE



Forgings engineered by Interstate require less machining. Our engineers and metallurgists specialize in working out especially complicated forging problems. This technical staff is again available for consultation on your present and postwar forging requirements.

The Universal Yoke Forging illustrated on the right was redesigned, as shown on the left. Five expensive machining setups were eliminated and the part put in service after just a simple drilling operation. Careful engineering of the forging provided coined surfaces at six points thereby eliminating three milling operations. A straight square hole is pierced in the forging, instead of the drilling and broaching operations previously performed. . . . Just another good example of labor and money saved by INTERSTATE Engineered Forgings.



INTERSTATE

DROP FORGE COMPANY

DROP OR UPSET FORGINGS
CARBON OR ALLOY STEELS
HEAT TREATING
METALLURGICAL CONTROL
MAGNETIC INSPECTION EQUIPMENT



4085 NORTH 27TH STREET
ZONE 9

MILWAUKEE, WIS.

**JOEY
ON-THE-JOB
SAYS...**

"I give 'em a beating
... and then wash
'em up and they're
ready for MORE!"



JOMAC

REGULAR INDUSTRIAL GLOVES

They wear longer—taking the roughest handling and giving as much as 7 times the service of ordinary work-gloves. A special knit in the Jomac Fabric makes this extraordinary wear possible. This hidden lock-stitch keeps the thick pile in place . . . and gives thousands of sturdy "cushions" which provide a semi-heat-resisting glove that protects the hands . . . allows a breathing-space to make possible the handling of reasonably hot metals. Endorsed by leading American shops and foundries.

And Jomac Gloves can be laundered, too. They are easy to wash, easy to keep clean . . . a safeguard against the dangers of dermatitis and other skin infections.

(Jomac also makes the famous Heat-Resisting Gloves.)

TEST THEM!

Just try JOMAC GLOVES on your stiffest jobs. Test them for wear, for washability, for economy, for increased production. Write for full details.

JOMAC

INDUSTRIAL GLOVES

C. WALKER JONES CO.

6135 N. Lambert Street, East Germantown,
Philadelphia 38, Penna.

(Continued from page 210)

national picture. October 6, Ralph Cake, Republican National Committeeman, analyzed the present political situation.

R. S. Bellis, world traveler, economist and manager of the City Lumber Co., Astoria, Ore., addressed the October 16 meeting on "Post War Prospects and Trade with Australia."

1 1 1

CONTRACT TERMINATION SPRINGFIELD, OHIO

B. F. Downey, Springfield, Ohio, reports that Major Milligan, representing the Termination Department of the Air Service, gave one of the most instructive talks about cancellations and the attitude of the Government, that has ever been presented to members of the Springfield Branch of the National Association of Purchasing Agents, at their meeting in the Shawnee Hotel, Springfield, September 27.

1 1 1

PRESIDENT SWANTON OF NATIONAL AT FORT WAYNE

The Purchasing Agents Association of Fort Wayne, Ind., was host to President R. C. Swanton of the National Association, Purchasing Agent, Winchester Repeating Arms Co., New Haven, Conn., and Vice President, George Mercer, 4th District, Purchasing Agent, P. R. Mallory & Co., Indianapolis, at a well attended meeting at the Chamber of Commerce, Fort Wayne, September 19th. President Swanton, who was introduced by Gerald Smith of the Fort Wayne Association, gave a snappy, to-the-point talk about "scare" buying, new inventions that have been put aside because it was felt they would be of no value to the war effort, and the potentialities of the consumer market.

1 1 1

WHAT'S NEW IN PURCHASING RHODE ISLAND ASSN.

Editor Stuart F. Heinritz of PURCHASING Magazine was guest speaker at the October 23rd meeting of the Purchasing Agents Association of Rhode Island, held in the Narragansett Hotel, Providence. His subject was "What's New in Purchasing."

1 1 1

RENARD LEADS FORUM DISCUSSION NEW YORK ASSOCIATION

Executive Secretary George A. Renard of the National Association led a free and open discussion on a wide range of today's purchasing problems, as well as those of the reconversion and post-war period at the regular Forum meeting of the Purchasing Agents Association of New York, at Builders' Exchange Club, October 17.

"Arboneeld", Chemistry's New-born Wood" was the subject of an interesting address by Dr. J. F. T. Berliner, duPont-Ammonium Division Scientist, at the din-

(Continued on page 216)



OWI Photo by Palmer in an Allegheny Ludlum plant.

Stainless Steel Carriers **FOR WAR'S VITAL LIQUIDS**

HAND BOOK OF SPECIAL STEELS

Newly revised and reprinted—a comprehensive book on the properties, uses, and best methods of handling, treatment, etc. of tool, stainless and other alloy steels. Plenty of tables to facilitate quick reference and selection. 136 pages, pocket-sized, latest data.

**SEND FOR
YOUR COPY**

Address Dept. P26



WHO'S to say what job is more vital than another, when the chips are down? Those Allegheny Metal tubes aren't gun barrels, but they carry charges quite as potent in the overall picture. Much stainless tubing has gone into the manufacture of high-octane gas, synthetic rubber, magnesium, food and dairy products, etc.—and in more minute sizes, it is indispensable in aircraft fuel and instrument lines, drug and medical work and similar uses.

In each case, the job was a function of stainless steel's ability to withstand corrosion or heat, or impart greater strength and reliability. Where can Allegheny Metal

—either in tubing, bars, wire, sheets, strip, castings or forgings—operate to improve *your* products? Our Technical Staff is at your service.



**Allegheny Ludlum
STEEL CORPORATION**

GENERAL OFFICES: BRACKENRIDGE, PENNA.

W&D A-9333

Allegheny Metal also handled by all Joseph T. Ryerson & Son, Inc. warehouses

There is No Substitute

FOR THE DEPENDABILITY OF

HUSSEY COPPER



in Post War Planning

- ★ UNIFORMITY
- ★ WORKABILITY
- ★ CORROSION RESISTANCE
- ★ RUST-FREE FOREVER
- ★ NEW, WAR-PROVED ALLOYS

The PATRIOTIC AMERICAN WAY—

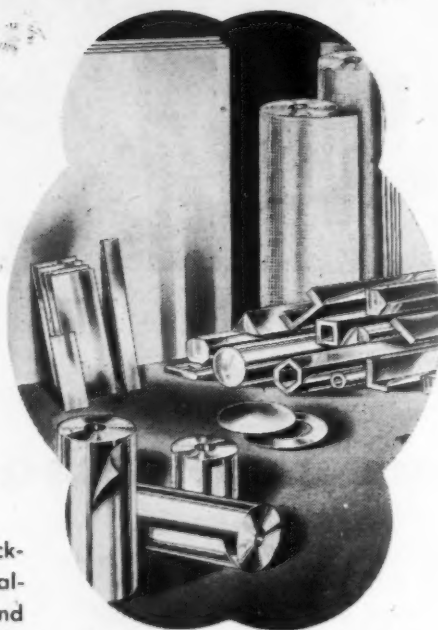
DO THE BASIC
PLANNING

Now!

Hussey engineers with their background of research, their metallurgical, creative resources and new wartime "KNOW-HOW", are working with leading manufacturers in virtually every industry—helping to plan the thousand-and-one post war uses for copper and its alloys . . . to better provide the promised jobs to our fighting men after Victory.

Planning for the future yes, without a moment's let-up in production effort because America still needs all the copper we can produce—for speedy Victory.

Hussey engineers are ready to aid you—in Basic Planning NOW!



C. G. HUSSEY & COMPANY

Division of Copper Range Co.

Rolling Mills and General Offices: PITTSBURGH, PA.

Warehouses in Principal Cities

(Continued from page 214)

ner meeting. Arboneeld refers to the chemical process developed by DuPont, which makes soft woods hard and hardwoods harder, and minimizes their tendency to warp or shrink.

1 1 1

EXPERIENCE IN ECUADOR TWIN CITIES

T. A. Eide, who served as a United States Representative on a special governmental commission in Ecuador, addressed the October 11 meeting of the Twin City Association of Purchasing Agents at the Minneapolis Athletic Club, on "My Experience in Ecuador."

1 1 1

DISCUSS FUEL SITUATION BALTIMORE

A. W. Thorson, Chief, Conservation Division Solid Fuels Administration for War, Washington, D.C. spoke on the fuel situation at the October 18th meeting of the Purchasing Agents Association of Baltimore, Md., at the Lord Baltimore Hotel. The association has scheduled its Annual Ladies Night for February 24, 1945.

1 1 1

POSTWAR PLANNING NEW ENGLAND ASSOCIATION

Governor Leverett Saltonstall of Massachusetts gave members of the New England Purchasing Agents Association an interesting exposition of what the Commonwealth is doing on postwar planning, at their October 16 meeting. Commodity reports were submitted by chairmen of the respective commodity committees. Secretary H. J. Graham reported fifteen applications for membership, four of which were transfers.

1 1 1

AMERICAN DEMOCRACY OKLAHOMA CITY

Dr. Waldo Stephens, guest speaker at the October 3 meeting of the Purchasing Agents Association of Oklahoma City, gave an interesting talk on "The Major Issues of American Democracy". The meeting was held in the Huckins Hotel, Oklahoma City, Okla.

1 1 1

ADVENTURE IN BUREAUCRACY VANCOUVER, B. C.

Howard T. Mitchell, publisher and managing editor of *Western Business and Industry*, Vancouver, B. C., spoke on "Adventure in Bureaucracy" at the September 18th meeting of the Purchasing Agents Association of British Columbia, at the Hotel Vancouver, Vancouver, B. C. For the past two-and-one-half years Mr. Mitchell has been manager of Shipbuilding Progress and Personnel Division of Wartime Merchant Shipping Limited, a Government sponsored company, with headquarters at Ottawa. For six months prior to that he was assistant to H. R. MacMillan on the Wartime Requirements Board.

WONDERING HOW TO BEAT FUEL SHORTAGES?



Your Westinghouse distributor offers two important aids in meeting fuel shortage problems.

First: A complete line of Westinghouse Electric Heating Units for every type of industrial requirement.

Second: The distributor's own "how-to-do-it" ability, combining knowledge drawn from Westinghouse heating headquarters, with his own wide practical experience in industrial heating applications.

Fan-type heaters solve many out-of-the-way space-heating problems in offices, plants and warehouses. In summer they operate as fans. Strip-type heaters solve limitless special problems in applying heat to vats, tanks, process machinery, hot tables, ovens and similar uses; cartridge heaters and immersion heaters meet other solid and liquid heating requirements.

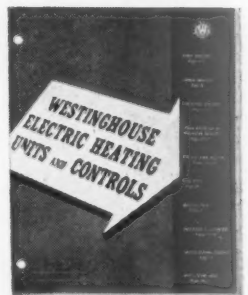
For any application, your Westinghouse distributor can offer you prompt help... competent recommendations. Call on him.

J-90513

USE THIS BOOK...

*for quick help in selecting... ordering...
applying heating units*

More than 40 pages of useful ordering and application information are contained in this handy catalog of Westinghouse Electric Heating Units and Controls (Catalog 28-000). Products listed include strip heaters, finned heaters, cartridge heaters, immersion heaters, air and oven heaters, thermostats and special controls. Ask your Westinghouse distributor for your copy, or write Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., Dept. 7-N.



Westinghouse
PLANTS IN 25 CITIES . . . OFFICES EVERYWHERE



SEE YOUR WESTINGHOUSE DISTRIBUTOR FIRST!

No buck-passing . . . that's one of the first things you will notice, when you begin to do business with Bristol Brass. You get your answers promptly and straight from the shoulder, and you get them backed up with performance. For we figure that if we can save your time as well as our own, then we're both that much farther ahead, and can get more done to our mutual satisfaction. As a matter of fact, what could be easier to do without than outworn formalities, red tape, and "buck fever" in the face of responsibility?

This seems no unusual philosophy at Bristol, because it's been practised here for 94 years. But once in a while someone drops a remark that it's something new in his experience *actually to enjoy* doing business with a supplier. All of which is deeply appreciated.

*You'll find your
business will not pass
from hand to hand
at*

Bristol Brass



And it's passed on to you simply for what it's worth
. . . on the chance that you see things the same way.
And if you do, then we certainly hope to be seeing you.

Makers of Brass since 1850 **The Bristol Brass Corporation**
BRISTOL, CONNECTICUT

Saved 50%

ON HANDLING TIME ALONE WITH FLAT TYPE

Speed Nuts

ON MOTOR VEHICLES AND FURNACES



★

**NO
WASHERS
NEEDED**

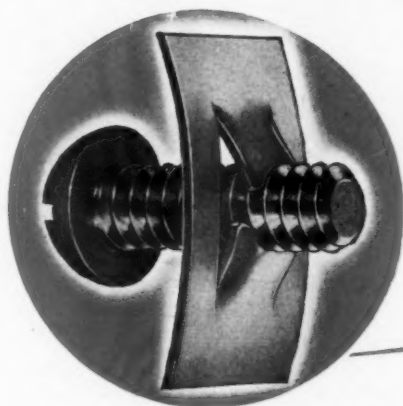
WIDER BEARING SURFACE

● Illustration above shows SPEED NUTS used in fastening insulation to automobile engine dash. By providing a wide bearing surface they eliminate spanner washers and prevent tearing of the insulating material.

Left illustration shows typical warm air furnace construction on which SPEED NUTS are used throughout the entire assembly. Threaded nuts and lock washers were replaced at a saving of over 50 per cent on handling time alone. SPEED NUTS provide a double-locking Spring-Tension grip that absorbs stress and strain caused by expansion and contraction, and they also prevent any loosening from vibration. In writing for literature, please request details of Flat Type SPEED NUTS.

TINNERMAN PRODUCTS, INC. • 2050 Fulton Road, Cleveland 13, Ohio

In Canada: Wallace Barnes Co., Ltd., Hamilton, Ont. In England: Simmonds Aerocessories Ltd., London



Speed Nuts★

Patented

★Trademark Reg.
U. S. Patent Office

over 2,000 shapes and sizes

F A S T E S T T H I N G I N F A S T E N I N G S



It's the new bond that gives the ultra smooth finishes you get with Chicago Grinding Wheels —

Precision finishes undreamed of before —

Finishes so accurate that you can measure them in micro inches with a Surface Analyzer.

PERFECT FINISH INSURANCE

Whatever you have to finish — metals, alloys, plastics, wood, laminates or composition materials — you can do it better with Chicago Wheels.

Chicago Wheels have kept pace with the precision requirements of our war industries, and you can use them with confidence to finish civilian goods better in double quick time.

CHICAGO GRINDING WHEELS

A wide range of grains and grades and — for the duration — sizes up to 3" in diameter.

TRY ONE FREE — We'll send without charge a Mounted Wheel or an FV Bond Grinding Wheel. Tell us size you'd like.

CHICAGO MOUNTED WHEELS



The first made and the finest today. In a selection of bonds, abrasives and shapes to handle each job more efficiently.



Write for Catalog listing all Chicago products and showing comparative photographs of finishes with different kinds of Wheels.

CHICAGO WHEEL & MFG. CO.
Headquarters for Mounted Wheels and Small Grinding Wheels

1101 W. Monroe St., Dept. PG, Chicago 7, Ill.

* Half a Century of Specialization has established our Reputation as the Small Wheel People of the Abrasive Industry.

PG11

Send Catalog. Interested in

☐ Mounted Wheels. ☐ Grinding Wheels.

☐ Send Test Wheel. Size

Name

Address

EMPIRE AND COMMONWEALTH MONTREAL

Blair Braser, Ottawa Editor of Maclean's Magazine was the principal speaker at the October 10 meeting of the Purchasing Agents Association of Montreal which was held in the Windsor Hotel, Montreal, Canada, his talk being entitled "Empire and Commonwealth."

1 1 1

J. M. STEWART MADE PRESIDENT OF ROCK RIVER VALLEY ASSN.

J. M. Stewart, Purchasing Agent, Greenlee Bros & Co., Rockford, Ill., succeeds D. M. Anderson as president of the Purchasing Agents Association of Rock River Valley, Illinois, who is no longer affiliated with the association due to a change in his business affiliation.

1 1 1

NATIONAL OFFICERS VISIT CANTON ASSOCIATION

President R. C. Swanton of the National Association (Winchester Repeating Arms Co., New Haven, Conn.) and Sixth District Vice President L. R. Forker, were guest speakers at the October 18 meeting of the Canton & Eastern Ohio Association of Purchasing Agents which was held in the Elks Club, Canton, Ohio.

1 1 1

WHAT DOES FREEDOM COST MILWAUKEE

Dr. Clark G. Kuebler, president of Ripon College, who has spent considerable time at the University of Munich where he gained a broad knowledge of conditions abroad, was guest speaker at the October 10 meeting of the Milwaukee Association of Purchasing Agents at the Milwaukee Elk's Club, Milwaukee, Wis. The association accepted four new active members at its September meeting and one non-resident member.

1 1 1

DISCUSS SYNTHETIC RUBBER AT AMARILLO

James Richards of the B. F. Goodrich Rubber Co., Borger, Tex., gave an interesting talk on the Development of Synthetic Rubber at the September 13 meeting of the Purchasing Agents Association of the Texas Panhandle, which was held at the Capitol Hotel, Amarillo. Another interesting feature of the meeting was a dialogue by Herbert White of Borger, on the "Young Man's First Time to Smoke a Cigar." The October meeting of the association was dedicated as "Ladies' Night."

1 1 1

WASHINGTON WOMEN'S GROUP DISCUSSES PRIORITIES

The October 13 meeting of the Women's Group of the Purchasing Agents Association of Washington, Seattle, Wash., was featured by a talk by Carl Nissler of the Seattle office of the War

(Continued on page 222)

SYLVANIA NEWS

INDUSTRIAL EDITION

NOVEMBER

Published in the Interests of Better Sight and Sound

1944

Windowless Plants Come in for Study In Postwar Plans

Industrial firms planning new postwar construction are scanning the advantages resulting from the uniform, controlled temperature, humidity and illumination in air conditioned windowless buildings.

Companies operating windowless plants have found in Sylvania Fluorescents an



Sylvania Fluorescent Lighting is used throughout this windowless plant operated by Walter Kidde.

effective means of supplying the cool, glareless light essential to worker comfort and efficiency. The low heat radiation of Sylvania Fluorescents also cuts down the load on air conditioning systems.

DID YOU KNOW...

That pulsating light can be made to "slow down" the motion of airplane propellers so that they can be studied by the human eye? The pulsating effect is produced by Sylvania electronic tubes called Strobotons.

* * *

That Sylvania Germicidal Lamps emit ultraviolet rays that kill most forms of airborne bacteria? They can be used in factories to prevent contamination of products.

* * *

That a tiny device called the Recorder Lamp—made by Sylvania—makes possible the accurate transmission of photos by radio?

Warplane Output Tops Goals, with Sylvania Lighting Lending a Hand

Glarefree Fluorescents Helped Speed Aircraft and Engine Production

With cut-backs in many phases of aircraft production giving clear-cut evidence of the industry's amazing success in attaining production levels undreamed of three years ago, it can now be disclosed that in a number of leading plants, the cool, high-intensity, glarefree illumination of Sylvania Fluorescents is

credited with an assist in maintaining output volume. Scenes below are from a few of the airplane and engine plants using Sylvania Fluorescent Lighting.

DEAD LAMPS CUT OFF BY STARTER

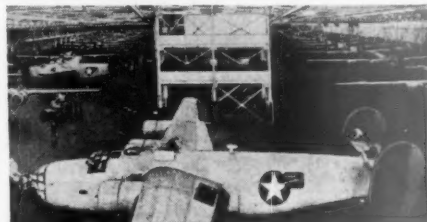
A newly designed fluorescent lamp starter—recently placed on the market by Sylvania—is expected to take over the important maintenance job of cutting dead lamps out of the circuit.

Lamps that have failed in service, if allowed to remain in the circuit, cause undue power losses, and may result in overheating the ballast and damaging the starter. Hence efficient maintenance calls for the prompt removal of the failed lamps.

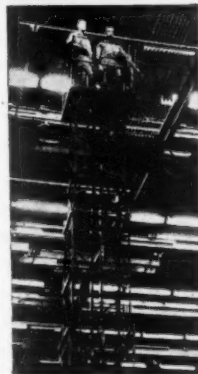
The new Sylvania device, known as the COP (Cut-Out Premium) Starter, will handle the cutting out automatically. Under failed lamp conditions—with starting current repeatedly flowing—sufficient heat is generated in a resistor to operate a bimetal latch which breaks the circuit to the failed lamp. A push button resets the starter for normal operation after replacing lamp.



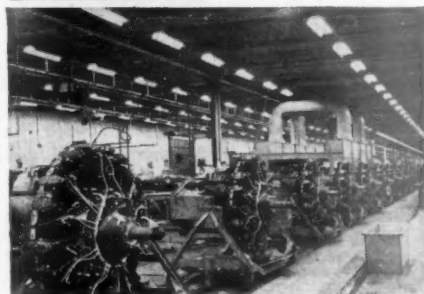
"But the night shift never knows when it's daylight since we put in Sylvania Fluorescents. Gentlemen, we need a rooster."



(Above) The giant Ford bomber plant at Willow Run uses more than 110 miles of Sylvania Fluorescents.



(Left) Systematic maintenance at the Bell Aircraft Plant at Marietta keeps 44,000 Sylvania Fluorescent fixtures working at their peak of efficiency.



Cyclone engines are built by Studebaker under high-level Sylvania Fluorescents.

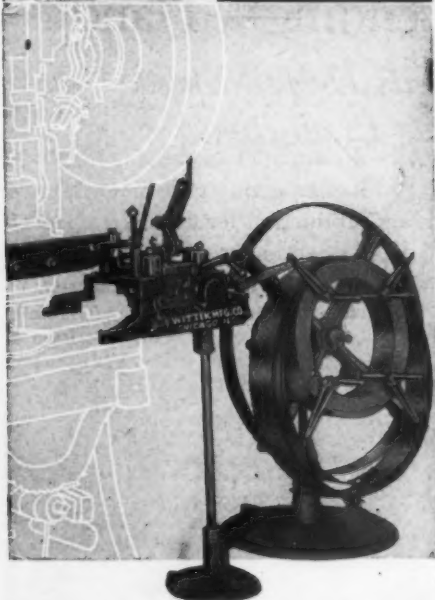
SYLVANIA ELECTRIC PRODUCTS INC.

Salem, Massachusetts

MAKERS OF FLUORESCENT LAMPS, FIXTURES, ACCESSORIES, INCANDESCENT LAMPS, RADIO TUBES, CATHODE RAY TUBES, ELECTRONIC DEVICES



**Our Punch Presses
Are More Flexible
And Productive
With WITTEK
Automatic Roll
Feeds And Reel
Stands**



Manufacturers of metal stampings facing problems in the feeding of coiled strip stock to punch presses will find that Wittek Automatic Roll Feeds and Reel Stands conserve man-hours and achieve new high production levels.

Providing an improved and simplified method of punch press operation, Wittek Automatic Roll Feeds and Reel Stands insure rapid, safe and accurate feeding under all conditions. Made in four different types to meet all automatic feeding requirements. Write for complete details. Wittek Manufacturing Co., 4305-15 West 24th Place, Chicago, Ill.



Wittek Hose Clamps for over twenty years identified with the Automotive and Aviation industries, are noted for their permanent leakproof hose connections. For original equipment and replacement.



WITTEK MANUFACTURING CO.
4305-15 W. 24th Pl., Chicago

(Continued from page 220)

Production Board. The members also found of interest a picturesque film showing a power dam up in the mountains called the "Million Horsepower Skagit." In September the association celebrated its first year of organization with "Salesmen's Night," at a meeting in the Gowman Hotel at which 85 members and guests were present. Speaker of the evening was Norton Key, Pacific Telephone & Telegraph Co., who with his assistant Phil Abb, presented a program entitled "Fun With Science."

1 1 1

PETROLEUM TECHNOLOGY DEVELOPMENTS — CINCINNATI

Bruce Hegeman, assistant director of technical service, Research Laboratory, The Texas Company, spoke on "Recent Developments in Petroleum Technology" at the October 10 meeting of the Cincinnati Association of Purchasing Agents at the Hotel Gibson, Cincinnati. His talk was supplemented by a motion picture entitled "Masters of Molecules". A special feature of the meeting was a talk by J. L. Fink, member of the staff of analysts, War Production Board, who spoke on "Spot Authorization."

1 1 1

MALCOM MASON

Malcom Mason, secretary of Peaslee-Gaulbert Corporation, Louisville, Ky., who had been with the company 47 years



in Purchasing and Sales, died suddenly of a heart attack at his home in Louisville. Mr. Mason joined the corporation in 1898, when 16 years of age, and served continuously up to the time of his death, holding various positions of responsibility and trust in the conduct of the business as an officer and as a director of the corporation. Mr. Mason was very active in the affairs of the Purchasing Agents Association of Louisville.

1 1 1

"WINGED HORIZON" PITTSBURGH

J. Roger Boor of Transcontinental and Western Airways presented a technicolor sound movie "Winged Horizons", portraying a trip across the American Continent in a stratoliner, at the October 17 meeting of the Purchasing Agents Association of Pittsburgh, held in the William Penn Hotel. The presentation was followed by a forum on Purchasing Department problems under the direction of Vice President A. W. Anderson.



"HE SAYS HE CAN

THANK PURDY FOR

HIS PRESENT

FLUID CONDITION."

Purdy can get *you* all set, too, for changes looming up. First thing we suggest is you stop right now on the stocking up of war steels. Depend on our inventory of over 6,000 items. Then when war contracts terminate, depend on us to get you set for civilian production. No matter whether your contract ends in a matter of weeks or a matter of months, you'll know that you won't get caught with heavy stocks you can't use.

And whether you've an emergency problem of supply or application or a long range planning question, consult our sales engineers. They have the complete PLANET line to back them up!

A. R. Purdy Co.

INCORPORATED

790 Greenwich St. • New York 14, N.Y.



**COLD FINISHED STEELS
SPRING STEELS • TUBING
TOOL STEELS • DRILL ROD
SYMONDS GROUND STOCK**



275,000 Acres of Even Finer Gaylord Boxes!



Gaylord-owned pulpwood timberlands now total over 275,000 acres, and our own reforestation projects assure an adequate supply of raw materials for the continuous operation of Gaylord Mills.

These giant stands of timber will eventually become Gaylord containers — made even finer in the future because of unusual wartime packaging developments and improvements.

From forest to finished product, Gaylord controls quality all the way through — from timber to mill to the container that exactly meets your individual requirements. It will pay you to consult our nearest office now on your postwar packaging requirements.

GAYLORD CONTAINER CORPORATION

General Offices: SAINT LOUIS

CORRUGATED AND SOLID FIBRE BOXES ... FOLDING CARTONS ... KRAFT
GROCERY BAGS and SACKS ... KRAFT PAPER AND SPECIALTIES

New York • Chicago • San Francisco • Atlanta • New Orleans • Jersey
City • Seattle • Indianapolis • Houston • Los Angeles • Oakland
Minneapolis • Dallas • Jacksonville • Columbus • Fort Worth • Tampa
Detroit • Cincinnati • Des Moines • Oklahoma City • Greenville
Portland • St. Louis • San Antonio • Memphis • Kansas City • Milwaukee
Chattanooga • Bogalusa • Weslaco • New Haven • Appleton

• • • **BUY MORE WAR BONDS** • • •

...FOR PEACE

Products

TO SERVE THE EXACTING STANDARDS
OF AMERICAN INDUSTRY!

Meeting Your Product Requirements

Acadia Synthetics are engineered for end use! Whether your need is for resistance to air, light, petroleum, ozone, age—or for properties that are found in natural rubber, and some that are not—Acadia has synthetics to meet these requirements in any combination! *Name the characteristics, or combination of characteristics you desire—Acadia has a synthetic compound for your product!*

Acadia engineers are prepared to help you determine the Synthetic Rubber compound best suited to your needs for products of war or of peace—without obligation on your part. *Write today for full engineering data on Acadia Synthetic Products.*



An important item in molded synthetic rubber shapes in mold design. Acadia's engineering and technical staff have the necessary "know how" to design efficient and precise molds.



ACADIA

Processors of Synthetic
Rubber and Plastics • Sheets
Extrusions • Molded Parts

Synthetic PRODUCTS

DIVISION WESTERN FELT WORKS

LARGEST INDEPENDENT MANUFACTURERS AND CUTTERS OF WOOL, HAIR OR JUTE FELTS
4035 Ogden Avenue, Chicago 23, Ill. • Detroit, Mich., 420 Stevenson Building • Branch Offices in All Principal Cities

NOVEMBER, 1944

PRESIDENT SWANTON ADDRESSES BRADFORD, PA. MEETING

President R. C. Swanton of the National Association was guest speaker at the October 16 meeting of the Purchasing Agents Association of Northwestern Pennsylvania, held in the Emery Hotel, Bradford, Pa.

Host to National Directors

At its September 15 meeting commencing with a noon lunch at the Arlington Hotel, Bradford, followed by golf and dinner at the Wanango Country Club, the association was host to the National Directors of the Sixth District, as follows:

- S. H. Stevenson, The Akron Porcelain Co., Akron, Ohio.
- R. R. Miller, The Deming Co., Salem, Ohio.
- E. Lee Clayton, Philip Carey Mfg. Co., Cincinnati, Ohio.
- Wm. F. Avery, Elwell-Parker Electric Co., Cleveland, Ohio.
- Ollie F. Oelgoetz, F. J. Heer Printing Co., Columbus, Ohio.
- R. E. Bishop, Burger Iron Co., Dayton, Ohio.
- P. L. Gideon, Universal Cyclops Steel Corp., Titusville, Pa.
- Ralph O. Keefer, Aluminum Co. of America, Pittsburgh, Pa.
- J. O. Gano, C. Rowell-Collier Publishing Co., Springfield, Ohio.
- L. C. Warrick, The Ottawa River Paper Co., Toledo, Ohio.
- Robert C. Jarrell, The Barium Reduction Corp., Charleston, W. Va.

REHABILITATION FOR RETURNED MEN TORONTO MEETING

Frank G. McDonagh, Dominion Secretary, Canadians Pensions Association, was guest speaker at the September 14 meeting of the Purchasing Agents Association of Toronto, Can., his subject being "Canada's Rehabilitation Program for Returned Men." He declared that every man in service on his return will ask the question: "What provisions have been made in Canada to help me resume my rightful place in civilian life?" He declared that it will be our responsibility to see that those boys who left us as boys, voluntarily and willingly, to assume the terrible tasks of war care, be given assistance at the time they will most need it.

He said that the future of Canada never offered more, as the country developed in war far beyond any thought of depression days. He expressed the opinion that the problem of re-establishment and rehabilitation will be as great, if not greater, than the problems of war. Three million Canadians will have their occupations immediately affected when the war ends, two million in war work and over a million to return from Canada's armed forces.

*There's a paper shortage—
share this magazine.*



*Your Post-War Products
May Never Have To
Stand the Strain of
a Power Dive.....*

yet they must be fastened to endure lifetime use and abuse. That extra measure of strength and precision which insures endurance beyond ordinary demands is a built-in quality of all HOLTITE screws, bolts and allied fastenings. You can "drive'em and forget'em" with absolute assurance of their trouble-free performance.

The technical and manufacturing experience gained in constant war production research is reflected in the added precision and stamina of every HOLTITE fastening.

Profit by these extra advantages
— yours at no added cost.
Specify HOLTITE.

**HOLTITE-Phillips
SCREWS & BOLTS**

Reduce fastening time and costs
up to 50% . . . improve the appearance of your products . . .
Eliminate spoilage and injuries . . .
Drive with power tools. Lower your costs—get higher production!

**CONTINENTAL
SCREW CO.** New Bedford, Mass., U.S.A.
BUY MORE BONDS



Use this

FREE

manual . . . simplify your
filing supplies purchasing in 1945

**THIS COUPON IS FOR
YOUR CONVENIENCE**

Methods Research Department
REMINGTON RAND INC.
Buffalo 5, New York

Please send () copies of
"The Office Manual of Better Filing
Supplies."

Name.....

Company.....

Address.....

City.....State.....

Perhaps as difficult to foresee as world events of 1945 are the changes this year will bring to the filing needs of your organization.

Preparations for renewed dealings with regular peacetime customers and contacts with new markets and new sources of supply will result in many intensified purchasing activities. Revised filing systems, added methods of control and new filing supplies required by various departments will have to be obtained promptly and efficiently.

This is where Remington Rand's catalog "The Office Manual of Better Filing Supplies" will serve you

effectively—and help materially to reduce costs on your filing supply purchases. This authoritative and highly practical 88-page book is more than a catalog. It provides effective answers to every filing problem that may develop, in addition to fully detailed information on the complete line of Remington Rand filing supplies, with illustrations and prices.

This handy reference book facilitates your contact with our nearest Branch Office in ordering all items in a manner that saves you time and trouble and speeds deliveries. We'll gladly send you extra copies for departmental use.

COPYRIGHT, 1944

SYSTEMS DIVISION

REMINGTON RAND

Buffalo 5, New York

Office
Equipment and Supplies

FORMS FORUM

Production Order

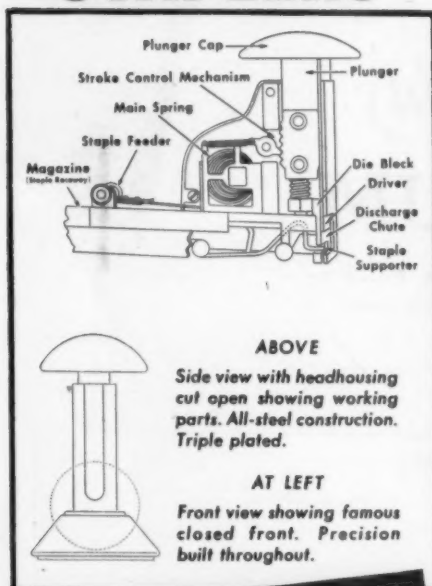
The set is now used as follows: Invoicing Copy (No. 1) informs the Accounting Department how to bill the customer, giving correct discounts, etc. The back of this copy carries a record of partial shipments. The first shipment is entered as the "A" shipment against that order, the second as "B," etc. Each shipment is referred to by order number plus this suffix letter to distinguish it. This copy is held in the Order Department until shipment is made. The 4th, or Production

A strong point of the system is the use

The greater number of orders calls for
(Continued on page 228)

[illegible]

"Inside Story" of ACE STAPLERS



Also Ace Scout \$1.00 and Ace Clipper \$4.50. All-steel, prewar construction.

Most purchasing agents are technically trained, many are engineers. With such a background plus a world of experience these men know a good piece of mechanism when they see it. That's why Ace Staplers have been so popular with purchasing agents for so many years. Each Ace Stapler part is made with watch-like precision, by skilled workmen, from finest materials. That combination gives these better machines smooth, easy, dependable operation, ruggedness for a lifetime of satisfactory service. Shipments allocated to those qualifying with priority ratings. **SOLD ONLY THROUGH DEALERS.**

ACE FASTENER CORPORATION
3415 North Ashland Ave., Chicago 13, Ill.

ACE *The WORLD'S FINEST*
Stapling Machines
FOR EVERY PURSE AND PURPOSE

(Continued from page 227)

hand ground cutting tools, so a copy (No. 7) of the order is sent to the Hand Grinding Department for reference use mainly. Specific instructions come into the department with the tools, but in case these become illegible or are lost, the foreman refers to this copy and can settle many of the questions without troubling other departments.

The Packing Slip and following copies are a trifle longer than the preceding ones so that, after typing, they can be detached as a unit, with stub and carbon intact, and sent to Shipping to be kept there till further information is filled in at time of shipment.

After the Label-Packing slip, there are two carbons inserted in the form. At the time of shipment when shipping data can be entered, the Shipping Room copy which was routed separately through the Control Room for shipping instructions, is inserted between these two carbons. Then the shipping date, insurance charge,

express number, and other carrier information can be entered with one writing on all copies, i. e., Packing Slip, Shipping Room copy, Notice to Invoice, Notice of Shipment, and Shipping Information copy.

The Notice to Invoice copy is sent from Shipping to the Order Department the moment shipment is made, and then is forwarded with the Invoicing Copy (No. 1) to the Accounting Department, showing any corrections as to undershipment or overshipments, etc. From these, a formal invoice is made up and sent to the customer.

The Notice of Shipment is mailed to the customer, informing him that the tools are on the way.

The Shipping Information copy goes directly to the Order Department to be attached to the Information copy (Delivery Control Record), the minute the package is wrapped. This is a signal that final information has been given on deliveries of that order.

Procurement Procedure

E. C. PALMER, Procurement Engineer, Mole-Richardson Co., designers and manufacturers of motion picture electrical equipment, Hollywood California, furnished the following forms and analysis of what he terms "a simple procurement procedure" worked out for his company.

"Elimination of excess paper work is

in mind we have evolved a system which needs only three forms for the procurement function, namely: requisition, purchase control, and purchase order.

"Requisition: This form originates in the planning department where the needs for a particular contract or sales schedule are listed on requisitions for transmittal to the purchasing department. If addi-

VENDOR COPY		Purchase Order		Nº 10001							
MOLE-RICHARDSON CO. STUDIO ELECTRICAL EQUIPMENT 937 N. Sycamore Ave. Tel. HOLLYWOOD 5338 HOLLYWOOD 36, CALIFORNIA											
To:		Reqn. No.									
		Date									
QUANTITY	DESCRIPTION	PRICE	DISCOUNT	EXTENSION							
<table border="1"> <tr> <td>Preference Rating</td> <td>Purpose</td> <td>Department</td> <td colspan="3">TOTAL</td> </tr> </table>						Preference Rating	Purpose	Department	TOTAL		
Preference Rating	Purpose	Department	TOTAL								
INVOICES MUST BE IN DUPLICATE Mole-Richardson Co. BY _____ PROCUREMENT ENGINEER											

of primary interest in every business and it is of special importance to a 'small' business, such as ours, where manpower is insufficient to handle a large volume. Saving of paper has also become increasingly meaningful. With both objectives

tional space is required, unnumbered requisitions are used and attached to the original. When the goods have been ordered the order number is written in the column provided, the original is filed in
(Continued on page 230)

Here's help for you on Contract Terminations



How to plan your internal contract termination organization



What paper work is needed



How to produce this paper work quickly, completely, in keeping with government requirements

Simple facts about the mechanics of contract windups explained clearly in one booklet, "The A B C of Contract Termination"

Even the apparently complicated, time-taking procedures involved in contract terminations can be reduced to relatively simple terms. You'll find an easy-to-read outline of paper work requirements and a sound method for meeting them in our new booklet offered here.

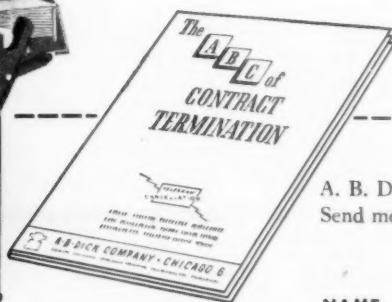
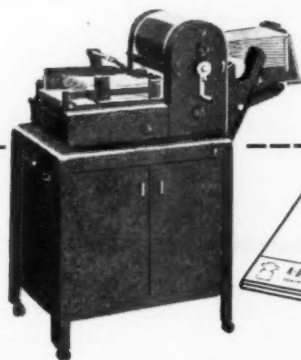
The basis of this method is the use of the Mimeograph* duplicator. In addition to its other advantages in this application, and they are considerable, it has a unique answer to a

paramount requirement:

that copies of all paper work be clearly legible for a period of years.

The crisp, black-on-white copy produced on the Mimeograph duplicator with Mimeograph brand supplies is *permanently legible*. It will not smudge or fade in spite of constant handling, weather, exposure, oils, and other chemicals common to industrial plants.

A. B. DICK COMPANY, Chicago.



← SEND FOR YOUR FREE COPY TODAY

A. B. Dick Company, Dept. P-1144, 720 W. Jackson Blvd., Chicago 6
Send me a free copy of your booklet, "The A B C of Contract Termination."


NAME.....

COMPANY.....

ADDRESS.....

CITY.....STATE.....

COPYRIGHT 1944, A. B. DICK COMPANY

 **Mimeograph
duplicator**

*MIMEOGRAPH is the trade-mark of A. B. Dick Company, Chicago, registered in the U. S. Patent Office.



"THERE MUST BE SOMETHING TERRIBLY WRONG AT HOME"

"It's just not like them not to write. They used to write me all the time when I was in camp . . . either Mom or Dad, or anyway, Sis! Something must be wrong. If not . . . well, somebody'd write . . . wouldn't they?"

Don't worry, soldier. Probably the only thing wrong at home is that your family doesn't use V-Mail. Maybe they just haven't gotten the idea of it. Or they may be among those

people who say there isn't enough room on those little pages. They perhaps don't realize that you'd rather get frequent short messages than wait weeks without a word.

We hope they start using V-Mail soon. When the folks back here all use V-Mail, there will be more space on ships and planes going out to the war theatres. You'll get extra supplies of vital war materials . . . and get back home that much sooner.

GIVE YOUR FIGHTING MAN..YOUR GOVERNMENT..YOURSELF..A BREAK..SEND ALL YOUR OVERSEAS MAIL BY *V-Mail!*

HOWARD BOND

THE HOWARD WRITING PAPER MILLS URBANA OHIO



Specify one of
ESLEECK
THIN PAPERS

Recommended for
Thin Letterheads, Copies,
Records, Advertising.

SEND FOR SAMPLES

ESLEECK
Manufacturing Company
Turners Falls, Mass.

helpful. Of course, no one set of forms will fit every business but the ideas are important in that even a small suggestion may effect a beneficial change."

THIS simple Purchase Order form and its interesting history of use, duly accompanied by "Request to Order", was supplied by F. M. Selinger, Purchasing Agent, Intertype Corporation, Brooklyn, N. Y. The distribution of the 12 copies which are made, is as follows:

No. 2, Sent to the Bills Payable Department.

foreman involved who signs for it and then this copy is filed in the Shipping and Receiving Department as its receipt for delivering the material.

No. 7, The authorization copy is filed in the Purchasing Department as a numerical index to purchase orders issued. It is also used where equipment is purchased and the authorization of the controller is required. In case of such a

[illegible]

request to purchase equipment it cannot be purchased until this copy has been signed.

No. 8, This copy is used when there is work to be done on the purchase order
(Continued on page 242)

WILL THERE STILL BE AN UNDEFEATED ENEMY?

How can this threat to full peacetime employment
and profits be eliminated?

PERHAPS the gravest danger in the drive to keep 50 million men and women at work in peacetime is that the very *existence* of this enemy will not be suspected.

For no Jap in the jungle was ever more adept at remaining unseen than the nonproductive costs that have crept into almost every business.

These Nonproductive Costs Are the Enemy

They are the costs (frequently staggering in size) which are caused by inadequate record systems of control and by wasteful, man-hour-consuming paper work in offices and plants.

They are the costs which must be *hunted out, reduced*—just as direct manufacturing costs were reduced through modern production-line methods.

For management is beginning to recognize that what people *want* is less important than what they can *buy*. And that while American *wanting-power* is unlimited... *buying-power* and resulting employment and profits will develop only as American industry finds new ways to cut costs and produce more for less.

Standard's Work Simplification Studies can chart the way. Many studies by Standard's Repre-

sentatives (and our staff of analysts, form design engineers and business machine specialists) have already shown the size of this potential cost saving. For instance, Formcraft redesign of the method of writing a Purchase Order proved that 71.4% of the previous paper-work operations could be eliminated, and saved 5 *miles* of paper on every 25 thousand orders written, for Seiberling Rubber Co.

How much will similar studies help you cut non-productive paper-work costs in your office and plant? That's something you'll want to find out as quickly as possible.

Write for timely folder, "Is There a Blind Spot in Your X-Day Plans?" and free Formcraft Digest and Check List to help you with your reconversion planning. No obligation, of course.

•	The	•
•	STANDARD REGISTER Company	•
•	<i>Manufacturer of Record Systems of Control for Business and Industry</i>	•
•	DAYTON 1, OHIO	•

Pacific Coast: Sunset McKee-Standard Register Sales Co., Oakland, Cal.
Canada: Crain Printers, Ltd., Ottawa. London: W. H. Smith & Son, Ltd

Amazing... what VERITHIN Colored Pencils can do for you!



30 Rich Colors

- 734 White
- 734½ Light Grey
- 735 Canary Yellow
- 735½ Lemon Yellow
- 736 Yellow Ochre
- 736½ Orange Ochre
- 737 Orange
- 737½ Sea Green
- 738 Green
- 738½ Light Green
- 739 Dark Green
- 739½ Olive Green
- 740 Ultramarine
- 740½ Sky Blue
- 741 Indigo Blue
- 741½ Azure Blue
- 742 Violet
- 742½ Lavender
- 743 Pink
- 743½ Rose
- 744 Scarlet Red
- 745 Carmine Red
- 745½ Terra Cotta
- 746 Sienna Brown
- 746½ Tuscan Red
- 747 Black
- 747½ Dark Grey
- 748 Red and Blue
- 750 Vermilion
- 753 Silver
- 754 Gold

* Your Chief Draughtsman will like these colors for marking blue prints.

RECORDS

are permanent when written with VERITHIN. Its insoluble pigments won't smear or run under moist hands, rain or accidental wetting.



CHECKING

is more accurate because VERITHIN holds a fine point for over 4,000 check marks before it needs resharpening.



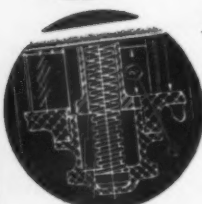
SYMBOL SYSTEMS

on maps, graphs and control cards are easier to set up and expand. VERITHIN offers 30 "high-visibility" colors for your code.



PRINT MARKING

is more positive with VERITHIN. Special blueprint colors (and the standard colors for black-and-whites) make corrections unmistakable.



DRAWING

with VERITHIN is a revelation. All 30 colors sharpen to needle points for fine detail, withstand heavy drawing pressure, and blend to perfection.



Whatever you do, you'll like them, too!
Write for a sample today, naming this magazine, your dealer and the color you desire.

FURNITURE IDEA CONTEST WON BY PURCHASING AGENT

Edwin Johnson, manager of the purchasing department of Massachusetts Mutual Life Insurance Co., Springfield, Mass., was awarded first prize—\$200 in war bonds—in an office furniture idea contest conducted by the Wells Office Furniture Co. of Chicago. Five hundred dollars in War Bonds were distributed to ten winners who submitted the best suggestions in the opinion of the judges.

Joseph W. Pritchard, president, Wells Office Furniture Co., states that the most popular thought contained in the hundreds of letters submitted was that of adjustable desk height submitted by Mr. Johnson, who general comments on the subject are as follows:

"The idea presented has been in my



Edwin Johnson, Purchasing Agent,
who won first prize in Office Furniture Idea Contest

mind for a number of years. I have seen thousands of people at desks in my Company and other offices working in very uncomfortable positions even though sitting in posture chairs. Mechanics in a factory usually have the best equipment in tools and machinery with the thought of increasing production. However, it is not so with office equipment. It seems that any type of box, or table, is good enough for the office personnel and the management expects the finest and most detailed work. Costly errors and loss of time can be laid at the door of fatigue which again in many cases is attributable to uncomfortable work set-ups involving the desk and chair. I believe we have come to the time when more thought should be given to the counter part of the chair—the desk."

Mr. Pritchard lists the following suggestions from the many that were received in the contest, which he feels are particularly worth mentioning: (1) Private locked compartment in a desk drawer for personal papers, stenographer's purse, etc. (2) Knee high filing drawer in desk. (3) Round corners for all desks. (4) Countersunk slide in desk for quick reference material. (5) Front compartment on executive desk for thermos bottle, glasses, etc. (6) Triangular shaped cabinet to fit the "forgotten" corner in the office. (7) Dictating shelf coming out from side of desk. (8) Grounding metal chairs so that human touch does not provide electrical shock.

"Chemi • Sealed"
(SUPER BONDED)

VERITHIN

COLORS PENCILS

EAGLE PENCIL CO., 703 E. 13th St., N.Y.

EAGLE PENCIL CO. of Canada, Ltd. Toronto

• REG. U.S. PAT. OFF.

Prominent Users of Strathmore Letterhead Papers: No. 53 of a Series



Is your letterhead **"ON THE BEAM"?**

Every two minutes throughout the day and night, from some airport in the United States, or Canada, or Mexico, an American Airlines Flagship takes off on a flight, vital today to winning the war. Tomorrow the Route of the Flagships will play an increasingly important part in the peacetime world.

American Airlines letterhead, on fine Strathmore paper, expresses the position and power of this great company. Your letterhead, too, should be "on the beam"...should get your story home. Today, when lighter weight paper must be used, quality is paramount. The Strathmore watermark is your assurance of that quality.

Strathmore Papers for Letterheads: Strathmore Parchment, Strathmore Script, Strathmore Bond, Thistlemark Bond, Alexandra Bond, Bay Path Bond and Alexandra Brilliant.

STRATHMORE

**MAKERS
OF FINE
PAPERS**

Strathmore Paper Company, West Springfield, Massachusetts

PAPER IS PART OF TODAY'S PICTURE

Current Strathmore advertising points out how essential paper is to the war effort, features leading industries that use Strathmore in their Victory programs, stresses the point that good letterheads help maintain the reputation every firm is guarding today.

★ ★ ★

This series appears in:

**FORTUNE
TIME
BUSINESS WEEK
UNITED STATES NEWS
NEWSWEEK
FORBES
ADVERTISING & SELLING
TIDE
PRINTERS' INK
SALES MANAGEMENT**

BYRON WESTON CO. LINEN RECORD, EXTRA NO. 1 100%
 DEFIANCER LEDGER 100% WAVERLY LEDGER 75% CENTENNIAL LEDGER 75% WINCHESTER LEDGER 50% BLACKSTONE LEDGER 25%
 WESTON'S BOND EXTRA NO. 1 100% DEFIANCER LEDGER 100% WAVERLY LEDGER 75% CENTENNIAL LEDGER 75% WINCHESTER LEDGER 50% BLACKSTONE LEDGER 25%
 WESTON'S MACHINE POSTING LEDGER AND INDEX 50%

NOTICE

To ALL EXECUTIVES AND
 DEPARTMENT HEADS

Use **WESTON**
Papers

for Records
 Documents
 Accounts
 Forms
 Letters

Worth Keeping



WESTON Cotton Fibre Content Papers are created for the purpose of providing a strong and enduring foundation for facts and information worth preserving.

That is why they have been in such extreme demand for vital wartime services such as maps, charts, dispatches, instruction manuals and war production records.

Your supplier will cooperate with you in establishing this sound business policy:

if it's worth keeping, keep it on a WESTON Paper

BYRON WESTON COMPANY

DALTON, MASSACHUSETTS

Makers of PAPERS for BUSINESS RECORDS



EVERY WESTON PAPER IS A COTTON FIBRE CONTENT PAPER

NO BORROWING FROM 1945 PAPER QUOTAS

Use of Overweight Stocks Encouraged—
 No Further Cuts Expected in 1944
 Quotas for Book Publishers

It is not expected that there will be a further cut in book publisher's paper consumption quotas in 1944, members of the Book Publishing and Manufacturing Industry Advisory Committee were told recently by officials of the War Production Board Printing and Publishing Division. However, the demand for certain types of paper by the military services and the Foreign Economic Administration is so high that publishers will not be able to maintain inventories of the quantity presently permissible under the several paper-use limitation orders, WPB said. Therefore, members of the book industry advisory committee, in session at Washington, recommended a 15 per cent curtailment of inventories until such time as the shortage of printing paper is relieved.

Faced with a substantial shortage of groundwood, book and fine papers in the last quarter of this year, estimated at between 50,000 and 60,000 tons, the members of the committee said their opinion was that book publishers would prefer to supplement their receipts of new paper by using paper already in inventory, rather than have WPB impose a further curtailment in consumption quotas.

Amendments of the paper-use limitation orders to reduce inventories of book and magazine publishers and commercial printers are expected to result in a yield of approximately 60,000 tons in the fourth quarter, which should substantially relieve pressure on the paper mills, WPB officials said. When cessation of the war in Europe reduces military pulp demands, permitting relaxation of WPB limitation orders, or when pulpwood and paper become more available, WPB officials agreed to permit the rebuilding of inventories to 25 per cent of annual consumption quotas under the book order L-245, as presently permitted.

Members of the committee also recommended that all WPB paper limitation orders be amended to require publishers of all types of reading matter and other consumers of paper to certify on each paper purchase order that the paper will be used in accordance with the provisions of the pertinent order. The present certification in the majority of paper limitation orders is a one-time certification only. It was the consensus of opinion that the filing of a certificate with each order would aid in securing compliance with all paper-use limitations and in tracing the use of paper from its production to its ultimate consumption.

Encourage the Use of Overweight Stock

Another recommendation concerned heavy basis weight paper in the inventories of book publishers. Although WPB desires to encourage the use of such overweight stock, it was the consensus of opinion that grave inequities would result if publishers possessing heavy weight paper were given permission to treat it

(Continued on page 238)

FRIDEN

FULLY AUTOMATIC CALCULATOR



Fully Automatic Carriage Tabulation and Automatic Dual Division.....just two of many exclusive Friden Features

With a Friden Fully Automatic Calculator, the machine...not the operator, does the work. For example when dividing, FRIDEN COMPLETELY AUTOMATIC CARRIAGE TABULATION with dividend entry...at the touch of ONE KEY...*automatically clears the dials...tabulates the carriage to the selected dividing position...enters the dividend from the keyboard to the dials...prevents the entry of the ONE in the quotient dials and clears the keyboard for the entry of the divisor.* FRIDEN FULLY AUTOMATIC DUAL DIVISION then permits the operator *at the touch of a key* to automatically obtain positive or negative quotients...and at the completion of the division, the keyboard *automatically clears*; preparing the machine for any subsequent calculations.

Telephone or write your local Friden Representative for complete information and the availability of these Calculators, when applications for delivery have been approved by the W. P. B.



Friden Mechanical and Instructional Service is available in approximately 250 Company Controlled Sales Agencies throughout the U. S. and Canada.

FRIDEN CALCULATING MACHINE CO., INC.

HOME OFFICE AND PLANT • SAN LEANDRO, CALIFORNIA, U. S. A. • SALES AND SERVICE THROUGHOUT THE WORLD



—has been ever since I first sold her OLD TOWN Carbon

"Why that's the best carbon I've ever used," she said enthusiastically when she came in for more. "It doesn't curl at all! I wish all the office materials I use were as good."

"Honey," said I, "there's an easy wish to grant. OLD TOWN has everything you need in ribbons, carbons and duplicating supplies. You see, they don't make business machines. They just stick to turning out the finest carbon products for all types of competing office and duplicating machines, without any partiality."

Whatever your carbon problem, for no matter what type of machine, go to your OLD TOWN stationer. He's always glad to sell OLD TOWN products, because all his customers tell him that ribbon for ribbon, sheet for sheet, OLD TOWN gives you more.

Trade-Marked and Grade-Marked for Your Protection



Old Town

RIBBON & CARBON CO., INC.

Foremost Makers of Ribbons and Carbons for Every Use

750 PACIFIC STREET, BROOKLYN 17, NEW YORK

Sales and Service Everywhere

(Continued from page 236)

as lighter basis weight in calculating their consumption quotas. Such procedure would be tantamount to awarding a bonus to those who deliberately refrained from using heavy weight papers on a voluntary basis, while penalizing those who had voluntarily done so, it was held, and the committee recommended that no appeals-granting procedure be adopted by WPB in this regard.

Borrowing From 1945

The question of borrowing paper from 1945 consumption quotas for use in 1944, was also discussed. Officials pointed out that appeals requesting such permission were being received by WPB. Some of the publishers appealing to WPB have the paper in inventory, but others would have to purchase the paper in the open market, it was reported. In either event the members of the committee recommended that permission to anticipate 1945 consumption quotas be denied, on the ground that the present serious lack of balance between the production of printing papers and permissible use would be aggravated.

The committee recommended that such controls as are necessary to ensure an equitable and orderly reconversion of the publishing industry after the termination of the European phase of the war be maintained if the paper situation requires it, provided comparable controls are exercised over all users of pulp. Existing controls applicable to the book publishing industry will be quickly as the situation permits, WPB officials said, pointing out but the abolition of such controls immediately after V-E Day might impose a burden on small and intermediate book publishers, with respect to the acquisition of paper, infinitely more severe than that which they now experience in conforming to existing regulations.

1 1 1

MANUFACTURERS FAVOR 3½" SIZE IDENTIFICATION CARD

A poll conducted by the Luggage and Leather Goods Manufacturers of America among manufacturers of personal leather goods discloses that a maximum dimension of 3½" x 2¼" for identification cards, would render it possible for such cards to fit conveniently into all brands of billfolds.

About a year ago, this national association began its campaign to secure the standardization of all types of identification cards. It made a survey of the cards issued by fraternal groups, hotels and hotel associations, automobile clubs, insurance companies, motor vehicle bureaus, oil companies and commercial identification card manufacturers. The majority of such cards already fit into the desired category. However, those issuers, whose cards are larger are being asked to conform with proposed dimensions.

The association points out that uniformity of cards will be of equal benefit to the manufacturers of the card holders and the issuers of the cards themselves.

(Continued on page 240)

How to Keep Well Posted...

... ON ALL ACCOUNTS!



You are right
Up to the minute...
On all payroll details...
When you give the job
To Sundstrand.

Sundstrand works fast
At computing, at recording.
Saves minutes
Where they count most.

These minutes add up
Into thousands of hours...
Valuable working hours
Saved for many firms.

Sundstrand Accounting Machines
Do the *entire* job...
Not just part of it.

Each machine makes available
Several clerks
For other essential duties.

Anyone can quickly attain
Operating proficiency.
The machine has a simple
"10 Figure Key" keyboard
And many automatic features.

Call Underwood Elliott Fisher
In your town...
And learn how to save
Important time and money
In your Payroll Department.

Specify SUNDSTRAND for Speed!

... ON PAYROLL RECORDS

Sundstrand posts, computes, and prints each check or pay envelope... and at the same time writes your payroll summary and employee's earnings record.

All entries are completely visible. Gross pay and net pay amounts are automatically computed... column totals automatically printed.

... ON GOVERNMENT REPORTS

The yearly- and quarterly-to-date earnings are automatically computed for all tax purposes. On Social Security taxes, the machine automatically exempts all yearly earnings over \$3,000.

... ON WAR BOND LEDGERS

Each employee's War Bond account is kept up-to-date, with each payroll deduction and amount "to go" automatically computed... and every resulting purchase automatically recorded. The employee-list of bond purchases is automatically counted and totaled.

* * *

Sundstrand Payroll Accounting Machines are available subject to War Production Board authorization.



Our factory at Bridgeport, Connecticut, proudly flies the Army-Navy "E" with star added as a second citation awarded for the production of precision instruments calling for skill and craftsmanship of the highest order...

Save the Seconds and You Save the Day—

Underwood Elliott Fisher Company

Accounting Machine Division

• One Park Avenue, New York 16, N. Y.

The way to **FASTER** *and BETTER* *Office Work*

Only the most efficient tools can be used in the war effort. This is just as true in the office as in the shop. For office and shop paper work, quality papers are the "tools" that produce better results faster.

Every day, all over America, Parsons Papers are stepping up production. Faster and better paper work is being turned out because these quality papers increase clerical efficiency. Their cotton fiber basis provides a faster working surface that types clearly, erases cleanly and resists handling.

Write today for Demonstration Folder of these superior business papers and see how they can be used in your business.

PARSONS PAPER COMPANY
Holyoke, Massachusetts

Parsons Paper
Specialized for Modern Business

(Continued from page 238)

The billfold manufacturers will be able to design standard partitions that will carry the cards more safely and conveniently. On the other hand the lives of the cards will be prolonged. If their size is correct they will not become crumpled, dog-eared and torn.

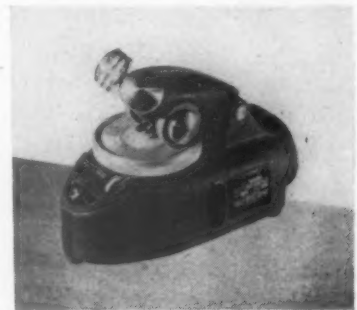
1 1 1

TESTS PAPER PRODUCTS IN MOIST OR WET CONDITION

A new type specimen table for the Taber Abraser that permits testing paper products in moist or wet condition has been announced by Taber Instrument Corporation, North Tonawanda, New York.

This specimen table holds a sufficient amount of water to cover the specimen when performing "wet tests."

The wearing action is performed by dual Calibrase wheels bearing against the



New Taber Abraser

specimen under constant pressure, revolving in opposite directions, one sliding radially toward the outside, the other sliding toward the inside of the wear path. Each wheel revolving at a steady constant speed through contact with the specimen, exerts a combined abrasive, compressive and twisting action twice in each revolution of the specimen holder. Because the specimen holder travels a complete 360 degree circle, the wear due to differences of grain or weave are fully revealed. A standardized load adjustment is provided for varying the pressure of the Calibrase wheels against the specimen so the Abraser will test both delicate and tough materials with equal precision.

The results of tests are reported either numerically as the number of "wear cycles" to produce a given amount of wear, or as "loss in weight" when weighed on a precision laboratory balance.

The Taber Abraser is self-contained and is ready to operate by simply plugging into any electrical line. Simplicity of operation and calculation make this Instrument ideal for laboratory tests and sales demonstrations. Bulletin 4012 describes the abramer in detail.

1 1 1

DITTO NAMES NEW SALES REPRESENTATIVE

R. J. Kirkpatrick, Jr., has been named field sales manager, and E. G. Harrison has been named printing division sales manager of Ditto Inc.

Originally

the name "Tension" meant envelopes with patented button and string fasteners, (Tension Tie) which keeps contents under tension — thus better protected in the mail.

Today

Tension means better envelopes for every business need

including

CORRESPONDENCE
WINDOW
POSTAGE SAVER
CATALOG
TENSION TIE
METAL CLASP
EXPANSION
DUO-POST
BOOKLET
RETURN
FLAT MAILING
PACKAGING

TENSION ENVELOPE CORP.

New York 14, N. Y.
345 Hudson St.

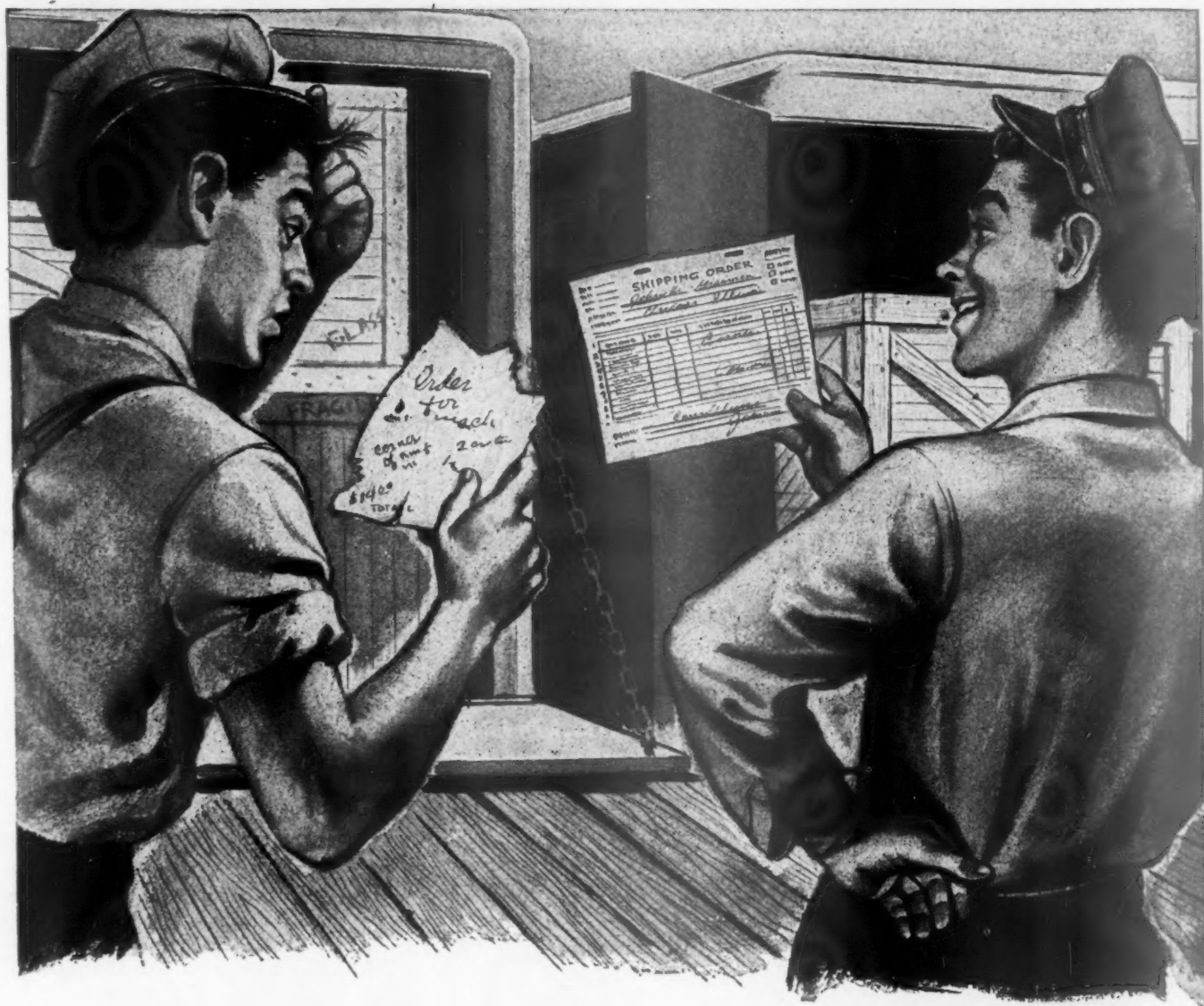
St. Louis 3, Mo.*
23rd & Locust

Minneapolis 15, Minn.*
500 South 5th St.

Des Moines 14, Iowa*
1912 Grand Ave.

Kansas City 8, Mo.*
19th & Campbell Sts.

* ORIGINALLY BERKOWITZ ENVELOPE CO.



Who's Going to Make a Mistake Here?

Not the man who has the clear, concise instruction sheet. But don't put the blame on the other fellow, either . . . put it where it belongs—on the record form!

And furnishing legible records is the job Uarco **continuous-strip** forms do. With a Uarco Register, one person at one time writes enough copies for your every need . . . furnishes "originals" for all interested parties. These records put an end to excessive copying and re-copying . . . lessen the possibility of errors.

But that is only one of the jobs Uarco does for business record keeping. These **continuous-strip** forms speed the flow of work smoothly, efficiently . . .

end carbon fuss, stop-and-go actions, and other time-wasting operations. Uarco records are made either for handwritten or machine-written use. They may be carbon interleaved or non-interleaved; may be used in a Uarco Autographic Register, typewriter, billing or tabulating machine.

No matter what type of record keeping problem you have, Uarco has or will devise a form to fit your individual need. It will cost you nothing to have a Uarco representative call today.

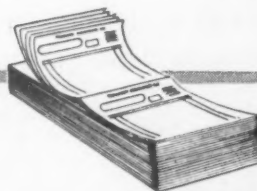
UNITED AUTOGRAPHIC REGISTER COMPANY
Chicago, Cleveland, Oakland • *Offices in All Principal Cities*



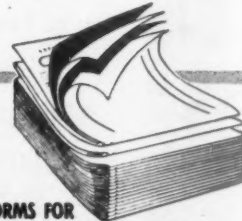
AUTOGRAPHIC REGISTERS



SINGLE SET
FORMS

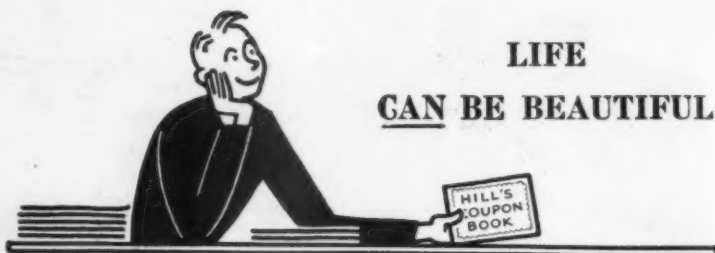


CONTINUOUS-STRIP FORMS FOR
HANDWRITTEN • TYPEWRITTEN • BUSINESS MACHINE RECORDS



UARCO

BETTER BUSINESS RECORDS



He grins from nine to five every day . . . mumbles about a beautiful life . . . but he's really quite sane! For this purchasing agent has just discovered Hill's new coupon book system for ordering business cards, the system that eliminates pesky clerical detail.

You simply buy a coupon book, or books—the price depends on the number of coupons and the type card desired. Then when someone needs business cards you tear out coupons to cover the quantity, fill in the few instructions, mail to Hill—and there you have it! There's no proof to read, no delivery to handle (Hill delivers direct, anywhere in the U. S.)—one invoice to put through the books, one check to draw, and you're through with this detail.

Get in touch with R. O. H. Hill today, and you'll feel like beaming too! We'll send full particulars by return mail.

270 Lafayette Street
New York 12, N. Y.
CAnal 6-6340

R.O.H. HILL, INC.

Engravers and Thermographers

Business Cards—Letterheads—Announcements and other "Ambassadors to American Business"

MacRae's Blue Book

Old buyers prefer MacRae's for reliability — new buyers for its reputation — industrial advertisers for proven results. For space and book rates, consult your agency or write Dept. K.

MacRae's Blue Book
A DIRECTORY OF AMERICAN INDUSTRY
18 E. HURON STREET • CHICAGO
OFFICES IN PRINCIPAL CITIES

(Continued from page 242)

file. This copy is forwarded to the Planning Department and is held there to show the progress of the order. It is completed upon receipt of the Receiving Ticket or the Move Ticket.

No. 11, This is sent to the Inspection Department and is used by them to show that they have inspected all purchased and manufactured material.

No. 12, This is held in the Purchasing Division and when the invoice is received; this copy acts as a requisition and is forwarded to the Cost Department. If there has been any labor attached to the purchase of the material on a special order, this is posted and the requisition used to complete our cost records.

In addition to the Green Copy, or, No. 6, being used by the Follow-up Department or Expediting Department, when the material is received, the foreman, of the Planning Department receives this copy to indicate that the material to do a certain job has arrived and is stocked. If any production order is involved, the production order will appear on the green ticket.

Mr. Selinger states that—"The advantage of this system to all concerned is that all persons involved have a full knowledge of the order number, where the material has been purchased, the amount that has been purchased, and when dealing with the Purchasing Department they can refer to the order number which makes it very simple for the Purchasing Department to check through its records to ascertain what has been ordered.

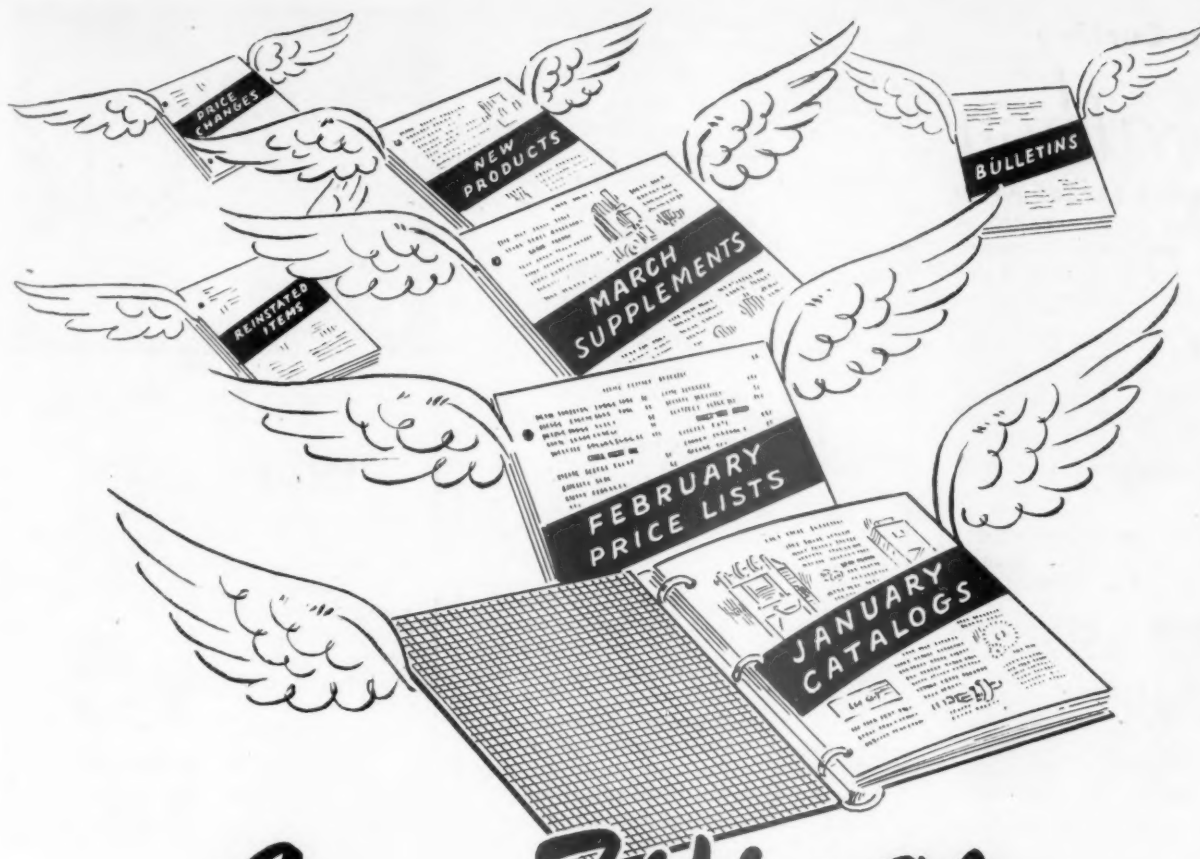
"In case of cancellation of contracts our commodity file can be used as a file to indicate exactly what has been ordered on a given contract and the orders can be cancelled immediately.

"Purchase orders are written on an electric typewriter and all 12 copies typed at once. The 'Request to Order' is written in duplicate. One is filed alphabetically and the other one filed in the open contract file."

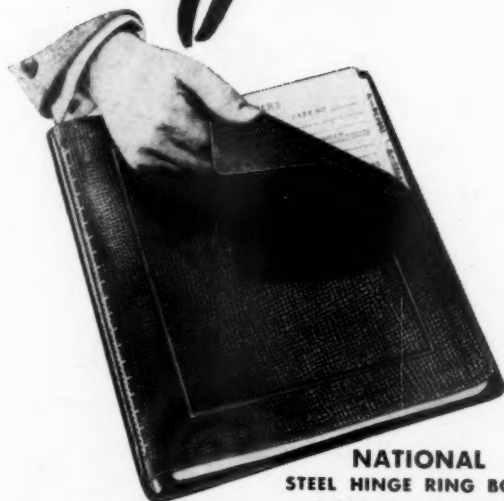
CORRECTION — SEPTEMBER ISSUE

In the Forms Forum Section of our September issue, A. W. Larsen was inadvertently referred to as Purchasing Director of the San Diego Division of Consolidated Vultee Aircraft Corporation, in connection with description of Purchase Order Form, Receiving Report, and Purchase Order Change Notice used by the San Diego Division. Mr. Larsen heads the purchasing function for the entire corporation. The San Diego division is the largest of the company's eleven manufacturing divisions.

Wm. M. Norton, Jr., of the Purchasing Director's Staff, advises that "As a result of the appearance of the article in PURCHASING, we have received several favorable comments from other concerns."



Give Wings TO YOUR 1945 PLANS



**NATIONAL
STEEL HINGE RING BOOKS**
held back until recently
by the needs of war, are
again available. Ask
for series 4800.



THE LOOSE LEAF WAY

1945 will be full of changes. Overnight government freezes on certain materials . . . releases on others . . . rapidly expanding civilian production . . . all mean quick changes in data of all kinds. The flexibility that is exclusively loose leaf will be more needed than ever before.

Keep your records and data up-to-the-minute in NATIONAL LOOSE LEAF COVERS. Their quality and stamina assure long life and lasting satisfaction. You'll find a style and size for every need.

AT YOUR STATIONER'S

NATIONAL BLANK BOOK COMPANY
HOLYOKE, MASSACHUSETTS
NEW YORK CHICAGO BOSTON SAN FRANCISCO

New, Non-Curling

Marathon

THE ALL-PURPOSE CARBON PAPER

NEW FORMULA — OUTSTANDING RESULTS. The product of two years' extensive research and testing in the laboratories of Columbia.



CURL-PROOF IN ANY TEMPERATURE, WEATHER, CLIMATE. Gives beautifully clean, sharp impressions.



For all-purpose typing on all makes of machines:

STANDARD NOISELESS ELECTRIC BIG, "PLUS" FEATURES:

- Preeminent writing beauty.
- Three weights — STANDARD, MEDIUM, FEATHERWEIGHT 1 finish . . . cover extensive typing requirements.
- Outstanding manifolding quality; the correct weight for every purpose.
- Quick-extraction feature: opposite corners of sheet are diagonally clipped to facilitate quick, "one-operation" removal of carbon copies. Sheet $\frac{1}{2}$ " longer than standard length, utilizes "between the lines" writing surface in sheet turnaround.

CURL-PROOF, VERSATILE MARATHON is trade marked for your identification and protection.



Ask your dealer or the Columbia office nearest you for samples, prices, demonstration.

COLUMBIA
RIBBON & CARBON
MANUFACTURING CO., INC.

Main Office & Factory, Glen Cove, L. I., N. Y.

NEW YORK • KANSAS CITY, MO.
CHICAGO • DETROIT • MILWAUKEE
MINNEAPOLIS • NASHVILLE
PHILADELPHIA • PITTSBURGH
PORTLAND, ORE. • CINCINNATI

(Harris-Moers Company)
Also: London, England; Sydney, Australia

ADOPT TERM "COTTON CONTENT"
INSTEAD OF "RAG CONTENT"

The watermark "Cotton Content" has replaced the old watermark "Rag Content," in Eagle-A papers because it more accurately describes the quality of the papers, and signifies that a fixed percentage of new cotton clippings was used in their manufacture, states the American Writing Paper Corporation of Holyoke, Mass., in a recent folder. "Cotton clippings represent new cotton fibres, and therefore cannot be classified as old or used rags," continues the folder. "There was a time when the watermark 'Rag Content' was used by all of the fine paper mills to describe their better grades of paper containing cotton fibres. However, 'Rag Content' does not adequately describe these fine papers today.

"Since cotton was the only fibre available for papermaking prior to 1880, grades of rag were only two—new clippings and old or used rags. Later the clippings and cuttings from textile mills, as well as the house-to-house used rags, were collected by dealers, who sorted and graded the rags for resale to the paper mills under various classifications.

"Today there are many materials other than cotton or rags available to the papermaker. Many of these, such as wood fibres, may be used alone or mixed with the textile materials for manufacturing paper. Only the best new cotton clippings, free from synthetic fibres are used in high quality papers."

1 1 1

SALES DEPARTMENT APPOINTMENTS
BY DIEBOLD, INC.

M. E. Hole was recently appointed Assistant General Sales Manager of Diebold, Inc., Canton, Ohio. Clarence E. Erickson has been made Western Division Sales Manager with headquarters in Chicago. Stanley L. Berkebile, who formerly was advertising manager, and later Eastern Division Sales Manager, has been made Sales Promotion manager.

1 1 1

FOUNTAIN PENS, MECHANICAL PENCILS
LIMITATION ORDERS REVOKED

Limitation Orders L-227, governing the manufacture of fountain pens and mechanical pencils, and L-227-a, covering pen nib production, have been revoked, the War Production Board announces.

Retention of these limitation orders is unnecessary, since the use of critical materials for the manufacture of fountain pens, mechanical pencils, and pen nibs is adequately controlled by materials conservation orders, WPB said.

Use of copper and copper base alloy for these items is prohibited by the copper conservation order M-9-c. Carbon steel and other critical materials are available in the small quantities needed by the industry, the agency said.

Three deterring factors in increasing production as a result of the revocation of the orders are the activity of the industry in direct war production, the man-

(Continued on page 248)

Special
INDEX
TABS

IN A

jiffy

WITH



GENUINE - ORIGINAL

MAK-UR-OWN

CELLULOID

INDEX TABS

Extra indexes, speeding reference in busy card files, books, folders, sales presentations, portfolios, are made and attached in a jiffy if you use clean, convenient MAK-UR-OWN indexing. 7 colors, 3 widths, for written, typed or printed captions.



Easy to Use

Inserts are changeable.



See your Stationer today—equip every desk with MAK-UR-OWN Index tabs.

The Victor Safe & Equipment Co., Inc.
NORTH TONAWANDA, N. Y.

13

STAR
Stapler

THE
BEST WAY
TO FASTEN
PAPERS



Star Staplers are needed on every desk. They use less steel to fasten papers than other methods of fastening. They are built to last and are guaranteed against defects. Essential industries can still be supplied. Model S 122 A shown above lists for only \$1.90. Write for Catalog.

He'll get your letter without fail
If you will send it by V-MAIL

STAR ★
PAPER FASTENER CO.
DEPT P., NORWALK, CONN.



Out of the welter of war...

Through the Will to Victory and the pressure of war economies, Industries on the home front co-operated and accomplished things they never even dreamed possible.

Like every other paper company, International Paper Company has been forced, through scarcities and restrictions, to produce paper far below the

standards set by paper makers who take great pride in their products. Yet out of these trials and tests have come many interesting and fruitful results. International looks forward to Peace — when it will be able to produce even better paper than ever.

★ ★ ★

CONTINUE TO SAVE ALL WASTE PAPER

International



PAPER COMPANY

220 E. 42nd ST., NEW YORK 17, N.Y.

PAPERS FOR PRINTING AND CONVERTING

**CURE WARTIME
LETTERHEAD-ACHES***
with *All-Rag* Anniversary Bond

See for Yourself

Only 1/5 Cent

Write today for
FREE Comparison Kit.
Visual proof, at a glance,
why only *all-rag* paper
is good enough for
your letterhead!

*LETTERHEAD-ACHE:

Executive annoyance resulting from the fact that many wartime letterheads on non-rag or part-rag paper tend to be somewhat dull and gray. CAUSE: Wartime shortages of bleaching chemicals. CURE: Step

up your letterhead *all the way to ALL-rag* Anniversary Bond — the one type of paper that's just as white, clean, crisp, permanent and impressive as before the war! . . . *Firm cotton fibres* stand up under repeated erasures. *Strong* . . . even in light weights, Anniversary Bond can take rough handling—reaches the other fellow's desk fresh and uncrumpled. *More expensive?* . . . yes, a trifle — only 6¢ more per day if you use 10,000 letterheads a year . . . less than the cost of an air mail stamp!

FOX RIVER PAPER CORPORATION, 403-K S. Appleton St., Appleton, Wis.

All-Rag ... ONLY  MORE PER LETTER

ANNIVERSARY BOND

A FOX RIVER *Masterline* PAPER

(Continued from page 246)

power shortage and the unavailability of increased quantities of containers. Under the container order, L-317, the industry is limited, per year, to 70 per cent of the amount of containers used in 1942.

L-227, in addition to establishing restrictions on the use of materials, assigned production quotas to each manufacturer of fountain pens and pencils. These quotas are no longer in effect.

L-227-a limited manufacture of pen nibs to 75 per cent of 1941 production and permitted production in excess of this quota for military, Government, and export orders.

WPB has assured the armed forces that it will take any necessary steps to assure the fulfillment of military requirements for the items previously covered by these limitation orders.

1 1 1

MANUFACTURERS MAY DEVELOP NEW FURNITURE PATTERN

New furniture patterns may be developed and sold without specific authorization by the War Production Board, but the total number of patterns offered by each furniture manufacturer at any one time may not exceed 25 per cent of the number of patterns he offered in September, 1941, or 24 patterns, whichever is greater, WPB announces.

The previous provision that furniture manufacturers request WPB permission before developing and selling new furniture patterns has been deleted from the furniture order, L-260-a, as amended today. The restriction on the total number of patterns that may be made and sold at any one time has been retained in the amended order.

Relaxation of the restriction on the development and sale of new furniture patterns was requested by the Wood Furniture, Upholstered Furniture, and Wood Office Chair Industry Advisory Committees at their recent meetings in Washington. Committee members said this would enable furniture manufacturers to maintain a higher level of employment during the transition to peacetime production.

1 1 1

INCREASED FREQUENCY OF ISSUE NOT A HARDSHIP

Increased frequency of issue is no longer considered a type of hardship suffered by magazine publishers for which relief should be granted by the War Production Board Appeals Board, WPB Printing and Publishing Officials announced.

Supplement 1 to the Magazine Limitation Order L-244, which lists the factors that shall and shall not be considered in granting appeals for additional printing paper quotas, was amended eliminating this type of hardship and adding "frequency of issuance" to the list of factors that shall not be considered, along with such factors as increase in trim size and basis weight of paper, increase in circulation, cover or subscription price, number of advertising and editorial pages, or other expansions.

(Continued on page 249)

A further provision was added to the previous requirement that a new publisher who first used paper in printing a new magazine in 1942, but did not publish any other magazine throughout the entire year, may be granted a "constructive base tonnage." This grant may now be made only if the magazine was published continuously until the issuance of L-244 on December 31, 1942, WPB explained. The base tonnage will be determined by averaging the tonnage of paper consumed in each issue printed in 1942 and multiplying the average tonnage by a factor representing the magazine's established frequency of issuance.

1 1 1

MAXIMUM PULPWOOD PRODUCTION ESSENTIAL AFTER "V-E" DAY

Demands for maximum production of pulpwood will continue after "Victory in Europe" Day or until the demands for paper and paper products relax, the newly-organized Eastern Pulpwood Industry Advisory Committee was informed at a recent meeting, the War Production Board reports.

To the end that WPB, through its Pulpwood Production Branch, can keep in close touch with pulpwood production and the special problems confronting the industry, committee members were asked to keep WPB officials advised on all developments in eastern sections of the country. Members present at the meeting represented the following four regions: Northeast, Appalachian, Lake States and South.

Long Fibre Shortage

While pulpwood production is currently high, there is still a critical shortage of long-fibered species, such as spruce and fir in the Northeast and Lake States regions, caused by a continuing shortage of labor in logging camps. In an effort to meet this shortage, the War Manpower Commission, through the U. S. Employment Service, is planning an intensive recruitment program to draw workers to pulpwood operations. The committee also discussed the use of war prisoners to supplement free labor, as well as the factors of transportation, mechanical equipment and Canadian imports of both pulpwood and labor.

Committee members asked that farmers in the Northeast and Lake States regions be urged to get out their available spruce and fir. Farmers in all regions, in cutting their pulpwood, are encouraged to use their own trucks where possible to deliver their wood to a rail siding or to a mill, and thereby receive more money for their product. This effort will help tremendously with the present shortage of labor, trucks, tires and gas at the mills, WPB said. Another suggestion was that farmers contact mills, pulpwood buyers, county agents and project foresters of the timber production war projects for the purpose of making definite arrangements for the purchase of their wood before cutting it, thus saving themselves time and labor.

Members of the Eastern Pulpwood In-

(Continued on page 250)

YOU plan the Postwar Product... Let DENNISON plan the System Tag

PREWAR...



Dennison System Tags simplified retail inventory control of occasional chairs; furnished payroll records in mills making silk and nylon stockings; by quick codes, boiled down operating instructions on rugs and automobile tires and glamour-giving knitwear.

WARTIME...



Dennison System Tags schedule the multiple unit production of anti-aircraft range finders; provide inspection control of tank parts; furnish warehousing, shipping records for aircraft engines; identify other items at various stages of processing or assembly.

POSTWAR...



Dennison System Tags may be needed tomorrow to help cut short the time when your production line shifts from bombsights to bedside radios. You may want a fast spot-check on subassemblies at a dozen points in their evolution. Possibly you will want to give a series of instructions, coded, to speed new products. Start thinking now, about the jobs system tags can do for you.*

DON'T PUT IT OFF—PUT IT UP TO

Dennison

1844

ONE HUNDREDTH YEAR

1944



Many Dennison System Tags are especially designed tag forms which go through a Dial-Set Printer. Variable operating information is printed on detachable sections, speedily—accurately. Dennison experience and facilities in this field have been multiplied and broadened by specialized wartime problems. Let Dennison plan today the system tags and production tickets that can be manufactured tomorrow. Write Dennison, 79 Ford Ave., Framingham, Mass.

TAGS • LABELS • SEALS • SET-UP BOXES • MARKING SYSTEMS • PAPER SPECIALTIES

With tests
like this....



Hammermill prevents this!

I'M SORRY... I'LL TYPE IT
OVER... BUT THAT POOR
PAPER SCUFFS EVERY
TIME WE ERASE!



Any typist makes a mistake now and then. And if she is using inferior paper, there will be a scuffed, messy-looking spot when she erases. She must do the whole letter over to make it neat. A waste of your paper. A waste of her time.

Hammermill Bond prevents much of this needless waste. It is the product of 45 years' experience in the making of papers for business

use. It is tested and checked at every step in its manufacture by the most modern devices in paper-making. Then, in Hammermill laboratories, the finished sheet receives 18 final tests—for erasure, strength, weight, every essential quality. Hammermill Bond passes every requirement of office use because it is *pre-tested*, proved in advance.

LOOK FOR THE

WATERMARK... IT IS HAMMERMILL'S WORD OF HONOR TO THE PUBLIC



HAMMERMILL BOND

Companion papers for office use include
Hammermill Mimeo-Bond and Hammermill Duplicator

IMPORTANT! Do you know what papers are now available? If not, send for the revised Hammermill Manual of Paper Information. It lists grades, sizes, finishes, weights of Hammermill papers now being made. For free copy, mail this coupon or write to: Hammermill Paper Company, Erie, Pennsylvania.



**BUY BONDS...
AND KEEP THEM**

Name

Position

(Please write on, or attach to, your company letterhead)

PU-NO

(Continued from page 249)

dustry Advisory Committee who attended were:

J. J. Armstrong, Union Bag & Paper Corp., Savannah, Ga.; William T. Brust, Hammermill Paper Co., Erie, Pa.; William D. Comings, West Virginia Pulp & Paper Co., New York City; A. G. Curtis, Gaylord Container Corp., Bogalusa, La.; Edmund O. Ehrhart, Armstrong Forest Co., Johnsonburg, Pa.; Thomas B. Farwell, Ryegate Paper Co., East Ryegate, Vt.; Stanton W. Mead, Consolidated Water Power & Paper Co., Wisconsin Rapids, Wis.; F. E. Pearson, Jr., Great Northern Paper Co., Bangor, Maine; H. G. Schanche, Brown Company, Berlin, N. H.; C. E. Smith, Champion Paper and Fiber Co., Canton, N. C.; Karl A. Swenning, Hollingsworth & Whitney Co., Boston, Mass., and C. E. Wilds, Brown Paper Mill Co., Inc., Monroe, La.

1 1 1

PAPER AND ALLIED TRADES DIRECTORY

A new edition of Lockwood's Directory of the Paper and Allied Trades, the 1945—70th annual, will be published in November. All sections are being revised and brought up to date. The Directory is published in two editions by Lockwood's Directory, 15 West 47th St., New York. These are the full regular and the special pocket-sized Traveler's edition, published at \$7.50 each. The latter includes only the reports of the pulp and paper mills as printed in the regular edition and an alphabetical list of the mill officials.

1 1 1

REDESIGNED G-E PUNCTURE TESTER ACCEPTED AS ASTM STANDARD

The General Electric puncture tester, which was recently redesigned to incorporate changes recommended by the Institute of Paper Chemistry, has now been adopted as a tentative standard by the American Society of Testing Materials (Ref. D781-44T). This device, formerly known as the boxboard tester, measures the resistance to both puncture and bending of fibreboard, corrugated board, plyboard, and other types of container materials.

Although the general lines and functions of the previous model are retained, the new tester is sturdier and safer, and capable of testing more diversified grades of board with greater accuracy. The main moving part is a pendulum from which extends an arm in the form of an arc of 90 degrees, at the end of which is fixed a triangular metal point one inch in height. The material to be tested is firmly held between two clamping plates. When the pendulum is released, the metal point, the size and shape of which simulates the hazards encountered in actual shipping conditions, punctures the material. The energy dissipated is indicated in inch-ounces per inch of tear upon a calibrated scale.

The new model is mounted on a firm, cast-iron standard. The scale is now

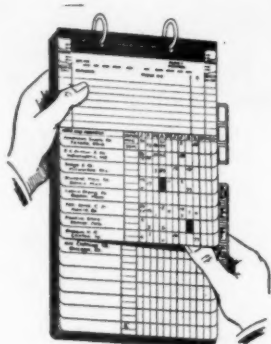
stationary and the pointer independent of the pendulum, thus minimizing the possibility of deflecting the pointer by jarring. Moreover, the stationary scale, with the pointer held at its correct scale value by a simple friction bearing, is easier to read.

When auxiliary weights are mounted on the pendulum for testing heavy grades of container material, the zero of the scale can be checked quickly by removing the clamping plates, springs, and handle, all of which comprise a subassembly. Furthermore, the release mechanism, now operating at the end of the pendulum rather than near its center of rotation, is so constructed that it latches the pendulum securely in a horizontal position. A clear plastic safety guard, mounted above the clamping plate, prevents too close an approach to the moving point of the pendulum.

1 1 1

VISIBLE PANEL BOOK

Addition of a visible panel book to its line of visible record products is announced by the Ross-Gould Company, St. Louis, Mo. The new card book holds 120



Handifax cards in sheets of 15 each. It is available in three sizes, namely, 6 x 11½", 8 x 11½", and 10 x 11½". Books with rings are available, designed to accommodate up to 500 cards in sheets of 15 to 20 each, according to size.

1 1 1

ARNOLD B. HUYSSOON HEADS WPB PAPERBOARD DIVISION

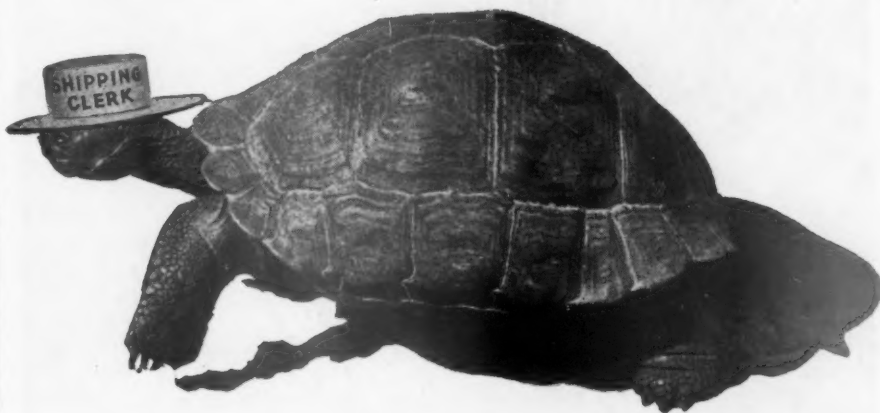
The appointment of Arnold B. Huyssoon, of Ridgefield Park, N. J., as director of the Paperboard Division to succeed R. W. Whitney on October 1 was announced by Hiland G. Batcheller, Operations Vice Chairman, War Production Board.

Mr. Whitney is returning to his position as vice president of the Hinde and Dauche Paper Company, Hoboken, N. J., from which he has been on leave since January 15, 1944, but will continue to be available as a special consultant to the director of the Paperboard Division.

Mr. Huyssoon, vice president and sales manager of the Continental Paper Company, of Ridgefield Park, has been with that company since June, 1920. He has been on leave of absence, however, since

(Continued on page 252)

Are slow deliveries driving you crazy?



Here's one less headache for Purchasing Agents

Orders for Webster's famous Typewriter Ribbons, MultiKopy Carbon Papers and Typewriter Carbon Paper, and the famous Ribbons are delivered promptly. Warehouse stocks are strategically located in Chicago, New York, Philadelphia, Pittsburgh, San Francisco and Cambridge, Massachusetts. 85% of the orders sent to these branches are shipped within 24 hours of receipt.

No priorities to worry about and no shipping delays when you dress, Adding and International order MultiKopy and Star Brand Business Machines.

For Service and Samples Write:

WEBSTER'S

7 Amherst Street, Cambridge 42, Mass.

CARBON PAPERS and TYPEWRITER RIBBONS

Factory branches: New York, Philadelphia, Chicago, Pittsburgh, San Francisco

KROYDON COVER

TOUGH
SOIL RESISTANT
WATER REPELLANT
EYE APPEALING

for

CATALOGS
MANUALS
INSTRUCTION
BOOKLETS
PORTFOLIOS
PROPOSAL
COVERS

*Kroydon Cover is distributed by leading
Paper Merchants throughout the country*

COMPANION COVER LINES

TWILTEX • LEATHERCRAFT • WOODTONE

HOLYOKE CARD & PAPER COMPANY

SPRINGFIELD 7, MASSACHUSETTS

KROYDON COVER IS

Nationally
distributed
through
these
recognized
Paper
Merchants

Write
them for
Specimens
and
Samples

ALBANY
W. H. Smith Paper Corp.
ALLENTOWN
G. A. Rina Paper Co.
BALTIMORE
B. F. Bond Paper Co.
BIRMINGHAM
Jefferson Paper Co.
BOSTON
Arnold-Roberts Co.
Storrs & Bement Co.
BUFFALO
Ailing & Cory Co.
CHICAGO
James White Paper Co.
CINCINNATI
Chatfield Paper Corp.
CLEVELAND
Central Ohio Paper Co.
COLUMBUS
Central Ohio Paper Co.
DALLAS
Southwestern Paper Co.
DAYTON
Central Ohio Paper Co.
DENVER
Carter, Rice & Carpenter
Paper Co.
DES MOINES
Pratt Paper Co.
DETROIT
Central Ohio Paper Co.
GRAND RAPIDS
Carpenter Paper Co.
HAMILTON, ONTARIO
United Paper Mills
HARTFORD
Rourke-Eno Paper Co.

HOUSTON
L. S. Bosworth Co.
KALAMAZOO
Birmingham & Prosser Co.
KANSAS CITY
Birmingham & Prosser Co.
LONDON, ONTARIO
United Paper Mills
LOS ANGELES
Zellerbach Paper Co.
MILWAUKEE
Dwight Bros. Paper Co.
MINNEAPOLIS
Wilcox-Mosher-Leffholm
Co.
MONTREAL, QUEBEC
McFarlane Sons & Hodg-
son
NASHVILLE
Clements Paper Co.
NEWARK
Lathrop Paper Co.
NEW HAVEN
Storrs & Bement Co.
Rourke-Eno Paper Co.
NEW YORK CITY
Ailing & Cory Co.
Lathrop Paper Co.
Miller & Wright Paper Co.
Milton Paper Co.
Bulkeley, Dunton & Co.
OMAHA
Field-Hamilton-Smith
Paper Co.
PHILADELPHIA
Thos. W. Price Co.
J. L. N. Smythe

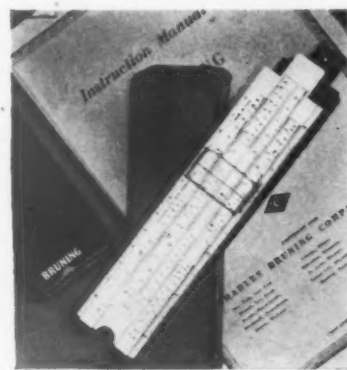
PITTSBURGH
Ailing & Cory Co.
PROVIDENCE, R. I.
Storrs & Bement Co.
PORTLAND, OREGON
Zellerbach Paper Co.
RICHMOND, VA.
B. W. Wilson Paper Co.
ROCHESTER
Ailing & Cory Co.
ST. LOUIS
Tobey Fine Papers, Inc.
ST. PAUL
Wilcox-Mosher-Leffholm
Co.
SALT LAKE CITY, UTAH
Zellerbach Paper Co.
SEATTLE, WASH.
Zellerbach Paper Co.
SPOKANE, WASH.
Zellerbach Paper Co.
SPRINGFIELD, MASS.
Paper House of New Eng-
land
SAN FRANCISCO
Zellerbach Paper Co.
TOLEDO
Central Ohio Paper Co.
TORONTO, ONTARIO
United Paper Mills
WASHINGTON, D. C.
Barton, Duer & Koch
Paper Co.
WORCESTER
Storrs & Bement Paper
Co.

(Continued from page 251)

July 11, 1944, while acting as assistant director of the Paperboard Division and chief of the Boxboard and Cartons Branch. During the period from April 1, 1943, through November 12, 1943, he also served WPB as chief of the Paperboard Section of the former Pulp and Paper Division.

NEW SLIDE RULE

High-precision, high-quality pocket slide rule is announced by the Charles Bruning Company, New York and Chicago. It is the Bruning 2401, 5-inch Pocket Slide Rule. The company stresses that this is not a "duration substitute," but rather a carefully made, smooth-



Bruning's New Slide Rule

working precision instrument designed for fast, easy operation.

A notable feature of the slide rule is the precision of its graduations. These graduations, being molded in, are an integral part of the rule—will not lose visibility through use. Graduations and numerals of the CI scale are in red to facilitate reading. Three screws in the back of the rule provide a simple adjustment for tension on the slide. The indicator is of glass and is easily replaceable in the event of breakage. This indicator is enclosed in a frame of stainless steel that holds it firmly in place and eliminates "wobble." A, B, CI, C, D, K, S, L and T scales are shown on the rule in order to adapt it to the widest possible range of service. The beveled edges of the rule are in graduated scales of both inches and centimeters.

DISTRICT APPOINTMENTS BY NATIONAL BANK BOOK CO.

The following appointments are announced by the National Bank Book Co. of Holyoke, Mass.: Walter R. Cane is new midwest sales representative with headquarters in Kansas City, Mo.; Harry J. Van Ornum is a new Chicago representative on "specials"; and Loraine Saxon of Waco, Tex., is a new Southwest Representative.

W. H. WILSON SALES MANAGER OF MULTIGRAPH DIVISION

The Addressograph-Multigraph Corporation announces the appointment of W.

H. Wilson as sales manager of its multi-graph Division. Mr. Wilson, who is now completing 25 years of service with the company was previously assistant sales manager.

1 1 1

ROYAL TYPEWRITER ANNOUNCES FIVE PROMOTIONS

L. C. Hult, who has been manager of the Oklahoma City office of the Royal Typewriter Co., New York, N. Y., has been made assistant western sales manager. O. J. Morgan, manager of the Salt Lake City branch has been named district manager with headquarters in Portland, Ore. W. L. Barber, M. W. Johnson, and C. E. Darragh have been appointed to managerships at Salt Lake City, Oklahoma City, and Rockford, respectively

WPB-OPA DIGEST

Paper Shortage to Continue—WPB—General paper and paperboard shortage and high demands for paper will continue probably for ten months after "Victory in Europe," WPB officials told members of the Over-All Paper IAC at a recent meeting. Pulpwood, pulp and paper inventories were reported low.

Newsprint Consumption — WPB —Total newsprint supply for U. S. consumption in the fourth quarter of 1944 will be 819,000 tons, the same amount as in the third quarter.

Survey of Printers—WPB—Thirty-eight thousand commercial printers of the nation will be surveyed by WPB, to learn their consumption and end use of paper in their base period, 1941, according to the War Production Board.

Pens and Pencils—WPB—Limitation Orders L-227, governing the manufacture of fountain pens and mechanical pencils, and L-227-a, covering pen nib production, have been revoked.

Pulpwood—WPB—Demands for maximum production of pulpwood will continue after "Victory in Europe" Day or until demands for paper and paper products relax, the newly organized Eastern Pulpwood IAC was informed at a recent meeting.

Specialty Papers—WPB—WPB recently announced certain clarifying changes in limitation order affecting specialty papers, particularly tag board distributed in paper trade to other than tag manufacturers. Schedule 16 of Limitation Order L-120 amended.

Urge Limitations Be Retained—WPB—Newspaper publishers have recommended that WPB's newspaper and other printing and publishing limitation orders not be revoked on "Victory in Europe" Day, but be retained until newsprint is in reasonably adequate supply, WPB reports.



"The All-American, 1956"

When you want to know GO TO AN EXPERT

WHEN YOU WANT to be sure you're getting the best in papers, why not ask your printer?

Get him to give you his own, unbiased opinion of Rising Papers. We'll rest our case on his decision. The reason we can is logical enough...for years the quality of Rising Papers has helped expert printers maintain their own reputations for fine work.

Prices compare with other quality papers. Among many lines:

Rising Bond (25% rag), Rising Line Marque (25% rag), Finance Bond (50% rag), Rising Parchment (100% rag). The Rising Paper Company, Housatonic, Mass.



Rising

ASK YOUR PRINTER—HE KNOWS PAPER

PERSONALITIES

in the NEWS

John Morrow Jr. has been re-elected a vice president of the International Harvester Co., Chicago, Ill., with supervision over the company's Purchasing and Traffic Departments, after serving for more than two years as a colonel in the U. S. Army overseas. He left his position as vice president with the company to be commissioned a colonel in the U. S. Army in June, 1942, and left shortly thereafter for service in England. Because of his long experience in Purchasing he was assigned to important Army purchasing du-



John Morrow Jr.

ties in England during the period when a large American Army was being assembled there.

Following the invasion of North Africa he was transferred to Algiers and served there for many months in the procurement of materials and supplies needed for the Army in the Mediterranean area. A veteran of overseas service in the first World War, Mr. Morrow spent many years thereafter in Harvester's European organization specializing in purchasing. After serving as inspector-general of purchasing for all European operations of the company he returned to the United States in 1931 to become manager of purchasing for the parent company and was elected a vice president in May, 1935.

J. Davidson Kennedy, Purchasing Agent of the Southern Natural Gas Co., Birmingham, Ala., and a former secretary of the Birmingham Association, was recently elected president of the Laymen's League of the Diocese of Alabama. He is affiliated with All Saints Episcopal Church, Homewood, Ala.

Lt. Col. Wallace A. Price, for the past two and a half years connected with the Ordnance Department of the United States Army, has returned to his position as Purchasing Agent of the Central Maine Power Co., Augusta, Me.

W. G. Jones has been named General Purchasing Agent of the Seaboard Air Line Railway with headquarters in Norfolk, Va. Since June, 1942, he has been executive assistant to the Seaboard receivers. He began his career with the Seaboard at Louisburg, N. C., in January, 1902, when he entered the train service branch of the railway. Successive promotions saw him progress through positions of increasing responsibility and in June, 1942, he was appointed executive assistant to the Receivers. He announced the appointment of J. L. Brown as Assistant to General Purchasing Agent with headquarters at Norfolk, and the appointment of W. P. McClenney as General Storekeeper with headquarters in Portsmouth.

Lucien W. Moore, previously General Purchasing Agent of Crane Company, Chicago, Ill., has been appointed Manager of the Valve and Fitting Sales department with headquarters at the Crane General office in Chicago. He has been with the Crane Company since 1922. He served as Lieutenant in the Air Service, U. S. Army, during the first World War, and upon his return to the United States at the end of 1919 he joined the Carnegie



Lucien W. Moore

Steel Company in its district sales office in Detroit, and about a year later was sent back to France to take charge of the corporation's export department in Paris. When Cie Crane decided to manufacture pipe in France, in 1922, Mr. Moore was asked to take charge, a position he held until international economic conditions made it prudent to discontinue such operations. Then he was made manager of Cie Crane's oil sales department, and three years later was appointed managing director of the Belgium subsidiary in Brussels.

In 1932 he returned to Paris as Manager of Sales and in July, 1940, when Nazi Germany made it untenable for Americans to remain in France, he returned to the

United States to become manager of Pipe Sales at Crane Headquarters, Chicago. He and his family were passengers on the last boat to leave France before Nazi occupation. For his services in France as an American civilian he was signally honored by being made a Chevalier de la Legion d'Honneur—Knight of the Legion of Honor.

In September, 1941, Mr. Moore was appointed General Purchasing Agent. In addition he was chairman of an O.P.A. Industry Advisory Committee, and mem-



Thomas J. Hanlon

ber of a similar committee of the War Production Board.

Thomas J. Hanlon, who has been with the company for 36 years, all of which has been spent in the Purchasing Department with the exception of service overseas in World War I from 1917 to 1919, has been made Purchasing Agent. In January, 1941, the Company divided its Purchasing Department in two sections, one of which, in charge of Mr. Hanlon, made its headquarters in the works office and included the personnel necessary to handle the purchase of machines and materials.

W. S. Thomson, Assistant Purchasing Agent of the Tasty Baking Company of Philadelphia, is now New England sales representative of the Scandinavia Belting Co. of Newark, N. J.

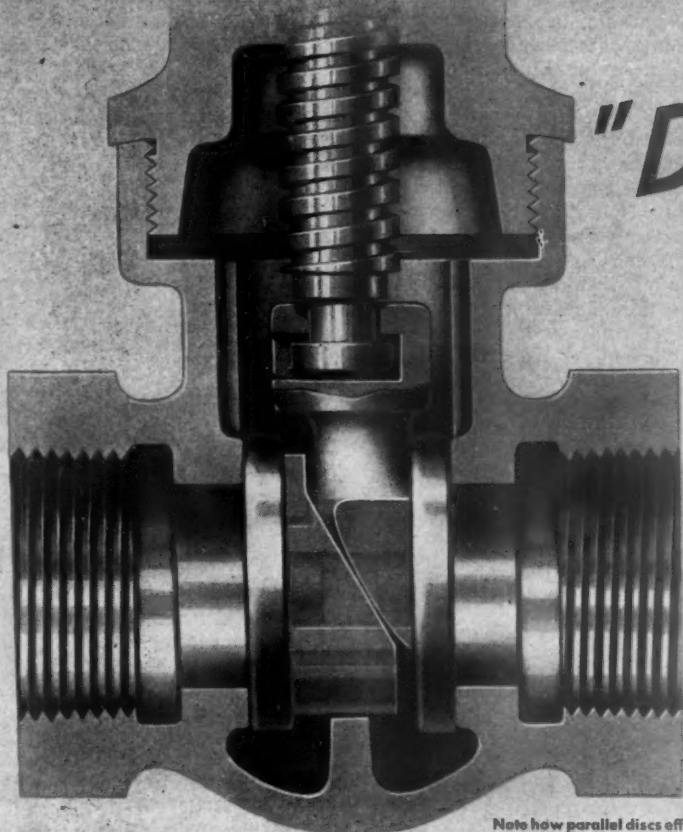
Robert C. Kelley has been appointed Purchasing Director of Dresser Industries, Inc., Bradford, Pa. He is a former president of the New England Purchasing Agents Association, and was Director of Purchases of the Food Machinery Corporation, Procurement and Engineering Division, on the West Coast.

John J. Clarke is the new Purchasing Agent of the United Farmers' Cooperative Creamery Association, Inc., Boston, Mass., succeeding Lee Wooding who has

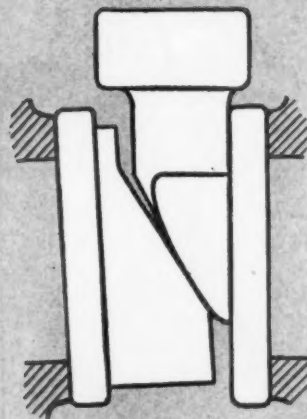
(Continued on page 256)

DARLING...the valve that can give you

"DROP-TIGHT" SEATING...



Note how parallel discs effect tight closure when valve seats are in original parallel position.



This greatly exaggerated diagram shows how the curved face of the upper wedge allows the discs to fit against seats, "unparalleled" by valve body distortion.

Darling manufactures a quality line of gate valves for long service—in parallel seat or tapered seat—slotted or solid wedge types—for service pressures up to 3000 pounds. Valves are available in cast iron, bronze, cast steel, forged steel, corrosion resisting and special alloys. Darling also manufactures check valves, compression type fire hydrants, motor and cylinder operated valves, and accessories.



THERE is one gate valve design that insures "drop-tight" seating, year after year. It is the unique Darling design. Darling's fully revolving double disc parallel seat gate valve provides:

1. ADAPTABILITY—Any valve can close tight the day before it is installed. But the day after is another story. Pipe out of alignment and bolting strains distort valve bodies. Pressure and temperature changes and other operating strains force valve bodies out of shape, too, so that gate and seats do not remain parallel.

To compensate for "unparalleled" seats, in the Darling valve wedging assembly a straight or tangent surface on the lower wedge acts on a curved or "radius" surface on the upper wedge. So no matter what position valve seats reach in years of usage, the Darling twin discs make perfect closures.

2. UNIFORM WEAR—The twin discs are free to revolve 360°, seating in a different position each time the valve is operated. Wear on discs and seats is uniform, making possible tight closing year after year.

3. INSTANT RELEASE—The four simple parts of the valve assembly—two discs, two wedges—release at the first fractional turn of the stem to open. The gate is immediately free to rise with little or no friction.

For over 40 years engineers have found that Darling Valves give "drop-tight" shut-off, long life and low maintenance.

NOW—when maximum uninterrupted production is all-important—you can safeguard it by installing Darling Valves. Later, when low-cost operation and maintenance are vital, you will be all set with valves that help you keep costs down and help you compete in postwar markets.

TRADE
DARLING
MARK

VALVE & MANUFACTURING CO.
WILLIAMSPORT, PA.

Kill CORROSION
Free Folder Tells How



With **ANGIER INDUWRAP***—inhibitive Dual Wrapper—you can fight corrosion and win. You can prevent it entirely—kill its causes before they begin their deadly work.

This has been demonstrated, over and over again, by leading manufacturers of oil-slushed airplane engine and other finished parts shipped to the war fronts of the world.

Anticipate now your peace time needs when **ANGIER INDUWRAP** will be generally available to industry. Investigate **INDUWRAP**.

WRITE TODAY FOR FREE FOLDER PU

* REG. U. S. PATENT OFFICE

Angier Corporation
CORROSION PREVENTIVE AND WATERPROOF PAPERS
FRAMINGHAM, MASS.

(Continued from page 254)

become associated with the New England Division of the Creamery Package Manufacturing Co. in Boston.

Charles Whiteside has been appointed Purchasing Agent for the Tyer Rubber Co., Boston, Mass. Formerly he was Priorities Specialist in the Purchasing Department.

Harry E. Koontz, Purchasing Agent for the Baker Machine Co., Omaha, Nebr., has been appointed Purchasing Agent for Douglas County, Nebraska. He was recommended for the position by the Omaha Purchasing Agents Association. Mr. Koontz has been with the Baker Ice Machine Company for 32 years.

H. Hartley Winter has been made Purchasing Agent for the Fall River Gasworks, Fall River, Mass., which is under the management of the Stone & Webster Service Corporation. Previously he was connected with the Haverhill Gas Light Co., Haverhill, Mass.

Glen M. Ede, General Purchasing Agent for the Hyster Company, Portland, Ore.,



and Peoria, Ill., for the past eight years, has been made assistant manager of the Hyster Industrial Truck Division.

Samuel L. Henry succeeds A. M. Johnston as Purchasing Agent, Reading Plant, American Chain & Cable Co., Reading, Pa. Mr. Johnston is now General Office Manager.

D. B. Sistare is now Purchasing Agent, Wico Electric Co., West Springfield, Mass., succeeding R. J. Corey who has assumed a new position in the company's Chicago office.

Al Haase has been made Purchasing Agent, for the parish of Baton Rouge, La. He will also be office manager for the bureau of public works.

Frank Lockman has been made Purchasing Agent for the City of Rena, Nev. Mr. Lockman has been a member of the city engineering department for the last nine years and has been serving as Acting Purchasing Agent.

A. C. Thompson has been named Purchasing Agent for Van Waters & Rogers, Inc., Seattle, Wash., succeeding W. L. Clouter, resigned. Previously Mr. Waters was priorities manager.

Frank B. Shannon, Purchasing Agent, American Cast Iron Pipe Co., and former National Director of the Birmingham Association, was elected to the Council of the City of Homewood, Ala., being one of two men from the Homewood Citizens Club slate to unseat the present incumbents on the eleven member council.

Kenneth M. Reed has been appointed Purchasing Agent for The Mutual Benefit Life Insurance Co., Newark, N. J. He



has been with the company for the past 24 years, twenty of which have been in the Purchasing Department. Mr. Reed was a member of the Metropolitan Purchasers' Assistants Club, and was treasurer of that association for the current year. He has become affiliated with the Purchasing Agents Assn. of New York.

John M. Brown, Purchasing Agent of Veeder-Root, Inc., Hartford, Conn., addressed a meeting of the Sales Executives Club at the Roosevelt Hotel, New York City, October 17th, on the topic, "The Salesman Today as the Purchasing Agent Meets Him." Mr. Brown also addressed a recent meeting of the Sales Managers Club at Springfield, Mass.

Austin B. Watson has been named Purchasing Agent for the newly established Purchasing Department of Westinghouse Electric Supply Company, Dallas, Tex.



He was formerly in the Stores Department of the company. Mr. Watson joined Westinghouse in 1928 as an office boy in the Dallas office. In 1929 he advanced to statistics and general accounting and two years later was promoted to the stock control and service departments.

W. R. Keagle has been named Purchasing Agent for the Pan American Airways, Alaska Division, Seattle, Wash. He formerly was chief storekeeper, and succeeds H. M. Lane who has received a commission as Lt. (j.g.) in the Naval Air Transport Service.

(Continued on page 260)



5000 HOURS ON THE JOB!
REPAIR COST - ZERO!

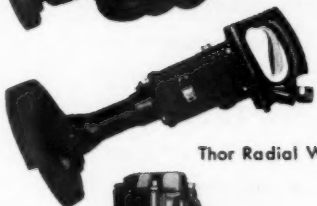
Thor

PNEUMATIC ROTARY GRINDERS

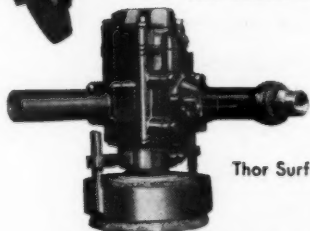
A SIZE AND STYLE FOR EVERY JOB



Thor Small Wheel Grinders



Thor Radial Wheel Grinders



Thor Surface Grinders

50 Thor Air Grinders!

LOOK AT THE RANGE!

Number of Models 50
Wheel Capacities . . . 1-1/2" to 8" dia.
Speeds 3000 to 21,000 r.p.m.
Lengths 5-1/2" to 39"
Weights 18 oz. to 24 lbs.

Independent Pneumatic Tool Company,
1740 East 12th St.,
Cleveland, Ohio.

Gentlemen:-

We believe you will be interested to know that we have now in service some eighteen No.360-G THOR Rotary Pneumatic Grinders, Model #5291. Eight of these grinders have been clamped in a horizontal position, in various locations in the shop, for grinding purposes, where the work is brought to the grinder.

These grinders have been in use, for over a period of one year - have never been taken apart, but did receive lubrication daily, grease in the bearings and oil in the oil reservoir for lubricating of the blades and revolving rotor. We estimate 5,000 hours operation.

The enclosed are the original four blades of wear on these grinders, as evidence of the small amount of wear on these blades. You have our permission to use these, as a testimony. THOR tools have given better results with less maintenance cost than any similar tools used in our shops.

Very truly yours,

Name furnished on request

Thor

PNEUMATIC TOOLS
Catalog No. 52

FREE INFORMATION

Write today for complete details about Thor Grinders and other Thor Air Tools in Catalog 52-B.

Thor

Portable Pneumatic and Electric Tools

INDEPENDENT PNEUMATIC TOOL COMPANY



600 W. JACKSON BOULEVARD, CHICAGO 6, ILL.

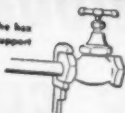
Branches in Principal Cities

how to protect your valves

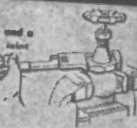
DON'T use a wrench on the bell end of the joint. A twisted body may be the result.



DO use your wrench on the hex near the joint. This gives support to the valve and prevents possible damage.



DON'T use a long lever and a strong pull on a tapered valve. Serious twisting may result.



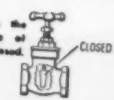
DO use a short lever and a few taps with the hammer. This is more effective, and won't twist the valve.



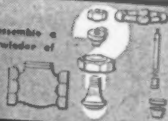
DON'T install a valve while it is in the open position. This is an important DON'T.



DO install the valve in the closed position. The chance of twisting it is lessened when closed.



DON'T try to re-assemble a valve without full knowledge of its construction.



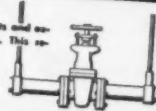
DO consult your EP&C catalog and eliminate the chances of reining the valve or of costly shutdowns.



DON'T install a valve so that it will carry the weight, sag or experience of the line.



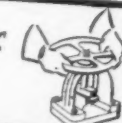
DO use proper supports and expansion bands or joints. This relieves undue weight on the valve.



DON'T force a leaking valve. More valves have been ruined by force than by any other single mistake.



DO open the valve part way to flush away foreign matter on the seat.



DON'T let overlength threads on a pipe to be screwed into a valve. The pipe may shoulder against the valve seat and injure it and the joint may not be tight.



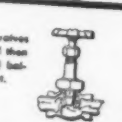
DO thread pipe to standard length. The joint will then make up tight before the pipe and injure the seat.



DON'T use gate valves or cocks for throttling. Serious "wire drawing" may result from constricting the flow at the seat of the seat farther from the window in gate valves.



DO use globes and angle valves for the flow as the flow will then be all around the seat and balanced around the disc support.



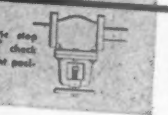
DON'T apply joint compound to the pipe and thread.



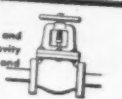
DO put joint compound on the pipe threads and it won't get on the valve seat to collect gels or scale.



DON'T install automatic stop and check valves or JN check valves in any but an upright position.



DO be sure that the disc and piston have a satisfactory gravity drop. Install automatic stop and check valves in an upright position.



DO'S AND DON'TS

...TO MAKE YOUR VALVES SERVE YOU BETTER-LONGER



This is the third of the series of charts developed by Reading-Pratt & Cady as a service to the valve users of the nation. Like the other two—How To KNOW VALVES and How To SELECT VALVES—this one, How To PROTECT YOUR VALVES, will serve as a reminder to experienced men and as invaluable information to new men in industry. It tells in pictures and simple, non-technical language how to avoid the mistakes that shorten the life of valves—how to get maximum service from them.

For copies of this chart, address our offices in Reading, Pennsylvania. There's no charge, of course.

READING-PRATT & CADY

MANUFACTURERS OF
READING CAST STEEL VALVES AND FITTINGS • PRATT & CADY BRASS AND IRON VALVES
D'ESTE VALVE AND ENGINEERING SPECIALTIES

Reading, Pa., Atlanta, Boston, Chicago, Denver, Houston, Los Angeles, New York, Philadelphia, Pittsburgh, San Francisco

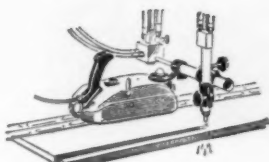
A DIVISION OF

AMERICAN CHAIN & CABLE COMPANY, Inc., BRIDGEPORT • CONNECTICUT

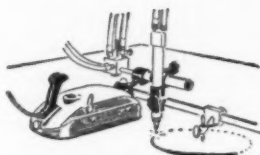
Speed Production...Cut Fabrication Costs

With This Low-Priced Oxy-Acetylene Cutting Machine OXWELD CM-30

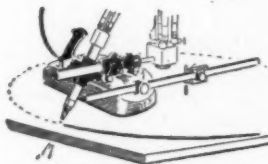
What You Can Do With This Machine



Straight Line Cutting



Circle Cutting



Circle Beveling

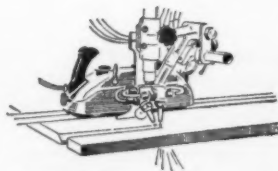
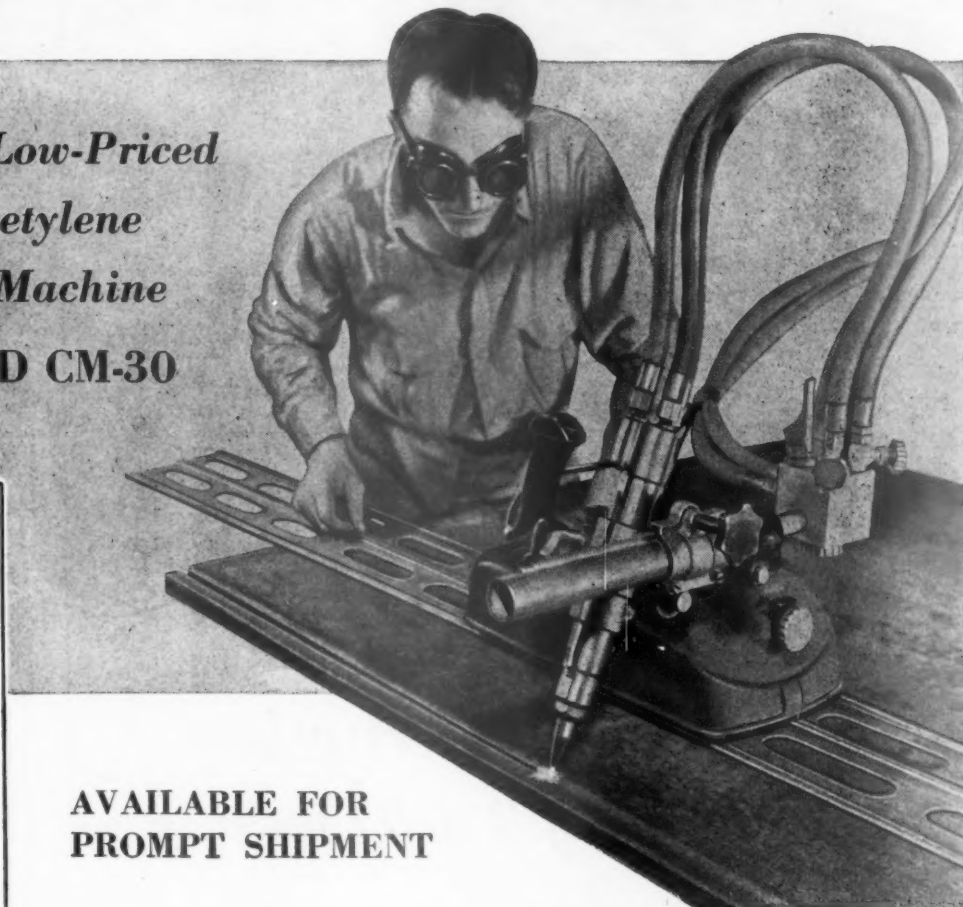


Plate-Edge Preparation



AVAILABLE FOR PROMPT SHIPMENT

The OXWELD CM-30 Portable Cutting Machine is particularly suited for cutting straight lines and bevels on metals up to 4 in. thick. It also will cut circles from 2 $\frac{3}{4}$ to 96 in. in diameter, and can be hand guided for simple shapes.

Many metalworking shops and maintenance departments have found this low-cost oxy-acetylene cutting machine an ideal tool for handling many metal-cutting jobs faster and more profitably.

Convenient to Use

The CM-30 weighs only 49 pounds, and can easily be carried from job to job—wherever a supply of oxygen and acetylene is available. It can be set up quickly and can be operated either on lightweight track for straight-line cutting, or on the work itself for cutting circles. A turret-type blowpipe mounting makes possible quick and easy adjustments. A new type of control assures uniformly even travel over a full range of speeds. This machine can be reversed instantly.

Write for a descriptive folder

The word "Oxweld" is a registered trade-mark of Union Carbide and Carbon Corporation.

BUY UNITED STATES WAR BONDS AND STAMPS



MARITIME "M" AWARD
FOR OUTSTANDING
PRODUCTION ACHIEVEMENT

THE LINDE AIR PRODUCTS COMPANY

Unit of Union Carbide and Carbon Corporation

30 E. 42nd St., New York 17, N. Y.  Offices in Other Principal Cities

In Canada: Dominion Oxygen Company, Limited, Toronto

BUY WAR BONDS



This Label Stands for Rugged Construction in Waterproof Work Clothing

★ The ability of Rainfair work clothing to stand long, hard use is due to a controlled *vulcanizing* process which toughens the coated fabric and "welds" the seams. Ask for the "Rainfair-Vulcanized" label. It guarantees 100% waterproofing, longer wear plus extra convenience features in...

**RAINCOATS ★ HATS ★ APRONS ★ SUITS
LEGGINGS ★ INDUSTRIAL SPECIALTIES**

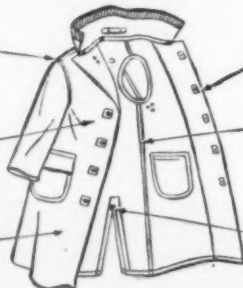
Rainfair's production gives preference to military requirements. However, **VULCANIZED** waterproof work clothing is available in limited quantities, for essential civilian use. Write for catalog and name of nearest distributor.

LOOK FOR RAINFAIR QUALITY FEATURES

Gum strapping vulcanized on shoulder seams and arm holes for water-tightness, strength.

Rainfair Vulcanizing assures 100% Waterproofness, unusual strength at seams, stubborn resistance to wear and deterioration.

Ample room throughout for freedom of action.



Reinforcing stays under fasteners give greater endurance.

Seams cemented, hand-rolled to make them 100% water-tight.

Rivets at points of strain provide extra strength for strenuous service.

RAINFAIR INC.

(Formerly Chicago Rubber Clothing Co.)

Dept. 34-L, RACINE, WISCONSIN

Also Manufacturers of Rainfair Storm Coats and Coated Fabrics for Industry.

F. Albert Hayes, General Purchasing Agent, American Hide & Leather Co., Boston, Mass., was recently married to Miss Gertrude Lincoln, who had been his secretary for many years. Mr. Hayes is a past president of the New England Purchasing Agents Association and also the National Association of Purchasing Agents.

Frederick H. Gay has been made Purchasing Agent of the Cowdrey Machine Division of the American Type Founders, Inc., Fitchburg, Mass., succeeding Henry E. Bueterfield who has become assistant general manager of the Harrington & Richardson Arms Co. of Worcester, Mass.

Norman W. Slohm, veteran in the non-ferrous industry, with 25 years' experience in sales and Purchasing during which he has covered the United States from coast to coast on purchasing re-



quirements from large scrap metal dealers and foundry accumulations, has recently been appointed in charge of sales of aluminum to the steel industry for The National Smelting Co., Cleveland, Ohio. He has faced the problem of buying in a rising market during two wars; and believes, of course, that purchases must be related to inventory control, and advocates stabilization of prices in order to maintain a steady market. Formerly in charge of the Chicago office and with National for five years, Mr. Slohm will have headquarters at the company's main office in Cleveland.

Frank J. Kress has been appointed Purchasing Agent for the Joseph Horne Company, Pittsburgh, Pa., succeeding William Beisel, who has retired after 52 years' service. He has been associated with Mr. Beisel as assistant purchasing agent for the past 18 years.

John R. Fuller, Sylvania Electric Products, Inc., Salem, Mass., has been made a member of the Board of Directors of the New England Purchasing Agents Association, succeeding Lee Wooding.

Henry J. Dostal, Purchasing Agent of Emerson Radio and Phonograph Corporation for the last three years, has been appointed Contract Manager of the company, according to an announcement by Benjamin Abrams, President. In his new position Mr. Dostal will handle all Government contracts for Emerson. Prior to joining Emerson he had been purchasing agent for two other radio manufacturers.



A MID-WEST RECOMMENDATION JUMPED PRODUCTION

A large engine manufacturer was recently facing a serious production slow-down. A MID-WEST service engineer was called in to make a complete study of this manufacturer's operation. His engineering analysis showed a deficiency in the abrasive the firm was using and advised the manufacturer to replace it with a MID-WEST

wheel. Result: production was jumped to an amazing extent and the finished product was rounder and straighter because the MID-WEST wheel cut free with little or no pressure.

Illustrated below are a few of MID-WEST ABRASIVE COMPANY'S reports from its service engineers.

At A METAL INDUSTRIES.	At A GYROSCOPE MANUFACTURER.	At A MOULDING COMPANY.
Field Test Report on SIZE: 2.50 LY 6-6.	Field Test Report on Sanding SIZE: No. 40 A/O Cloth Xd Reg. Brown 8" wide x 107" dia	Field Test Report SIZE: 600 - 98 X - 72 X - 59
At A MILITARY ENGINE	At A PRODUCTS COMPANY.	At A Motor Car Company --
Field Test Report on Grinding Wheels SIZE: 10 x 1/4 x 3-2.4-KY-6.6	Field Test Report on Grinding Wheels SIZE: 7 x 1/2 x 1/4 2.50 JY 6. 10 x 3/4 x 3 2.50 JY 6	Field Test Report on Grinding Wheels SIZE: 36 x 3 x 12 - Type 1-3.366 D-5.6
At A MOTOR COMPANY	At AN AVIATION COMPANY	At A SUPPLY COMPANY
Field Test Report on Honing Stone and Grinding Wheel SIZE: 2.50 KY-6 7 x 1/2 x 1/4	Field Test Report on Grinding Wheels SIZE: 7 x 1/2 x 1/4 Type 1 2.50 KY 6	Field Test Report on Grinding Wheels SIZE: 1.46 NY6 10 x 7/8 x 3/4 Type 1
At CANADIAN GUN PLANT	At A PROPELLER DIVISION	At DRILL & TOOL COMPANY
Field Test Report on Grinding Wheels SIZE: 2.46 JY6 6 x 1/2 x 1/4	Field Test Report on Grinding Wheels SIZE: 14 x 3 x 1/4 3.20 JC 5	Field Test Report on Grinding Wheels SIZE: 2.46 LVR 6 7 x 1/2 x 1/4
At GEAR GRINDING COMPANY	At A FOUNDRY	At GAUGE COMPANY
Made By	Made By	Made By

Every MID-WEST item, whether a sandpaper, a grinding wheel, a hone, a rubbing brick, a sharpening stone, compound or wheel dresser, stands on its own record in a family of dependable service-rendering products.

MID-WEST ABRASIVE CO.

Manufacturers of DEPENDABLE Abrasives
Owosso Mich. 1960 E. Milwaukee Ave. • Detroit 11, Michigan

Rochester Pa.

BUYER NO. 3 POPS THE QUESTION



Do loose nut breakdowns lower the trade-in value of your vehicles?

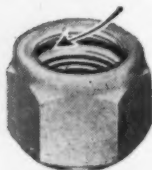
More than 1100 operators of 110,000 vehicles said, "YES!" in a recent survey.* They named over 60 trouble centers where loose nuts cut machine life, and 3 out of 4 asked for "a good, all-metal nut that vibration will not loosen."

The Boots Self-Locking Nut meets their exact requirements. In a test on many trucks, twelve months of hard-driving wear and tear couldn't shake it loose from a single connection.

Secured by its built-in lock, it holds with a steel grip. Removed with an ordinary wrench, it can be used again and again without accelerated locking loss. Won't slip in oil, water, chemicals.

Boots Aircraft Nut Corporation, General Offices, New Canaan, Conn.

The ALL-METAL LOCK
is Built-in Here



*OPERATORS OF
110,000 MOTOR VEHICLES

Indicated that if a vibration-proof nut like the above were standard on their post-war equipment, tens of thousands of dollars for maintenance and repairs would be saved.

Motion Picture—"All Work And No Play"—16 mm. sound—30 minutes. Write for information Dept. A-27.

BOOTS
SELF-LOCKING NUTS

"There's No Excuse for a Nut Shaking Loose"

Representatives in New York, Chicago, Detroit, Indianapolis, Los Angeles, Kansas City, Dallas, Toronto, Montreal, Vancouver

PLYWOOD

Pacific Mutual Door Co.

QUALITY PAMUDO SERVICE

National Distributors
DOUGLAS FIR PLYWOOD
Since 1921

Mills: OREGON, WASHINGTON
Home Office: TACOMA 1, WASH.

Six Branch Offices and Warehouses

CHICAGO 8, ILL.	ST. PAUL 4, MINN.	KANSAS CITY 3, KAN.
GARWOOD, N. J.	BALTIMORE 31, MD.	LOS ANGELES 21, CAL.

WRITE US FOR PRICE LIST AND GRADE USE GUIDE

AMONG THE MEN
YOU BUY FROM

A. W. Nelson has been named district sales manager of the Indianapolis office for Allegheny Ludlum Steel Corp. He has been the company's representative in Minneapolis, Minn.

Thomas W. Gabriel has been named district sales manager in Ohio for the



Firth-Sterling Steel Co. He will head-quarter in Cleveland. **Lloyd W. Clowes** will head the newly created sales district in Pittsburgh.

Edwin L. Ehret has joined the South-western District of the Westinghouse Lamp Division as district engineer. He will supervise contracts with industries, utilities and jobbers and keep them advised of the newest accomplishments of lamp engineering and research to guide them on lighting applications.

Frank C. Angle has been appointed manager of all Allis-Chalmers field sales



offices of the general machinery division and their operations. He will continue to supervise operations of the Pacific Region.

Warren A. Beh has been promoted to the position of director of nylon sales of E. I. du Pont de Nemours and Co. He succeeds Robert A. Ramsdell, recently appointed assistant manager of the Nylon Division.

William B. Mercer is handling sales for Robins Conveyors, Inc. in the New England territory after having been with the War Production Board, Materials Handling Division since 1942.

Evelyn S. Carlson has been named sales and production coordinator for the Wickwire Spencer Steel Co. at the Newark, N. J. plant. Miss Carlson was formerly with the Molybdenum Wire Allocation division of the War Production Board.

(Continued on page 266)

GAIR BY AIR

**SAVES WEIGHT—SAVES SPACE
SAVES PACKAGING COSTS**

To the land of the Totem Poles — flying time's from dawn to dusk. Because weight is a first consideration Gair containers and corrugated boxes play a vital part in overland and overseas shipping now and for the future. Gair by Air means maximum cargo at minimum tonnage. Write for booklet "Air Cargoes."



For large users—booklet on the Palletized Load, illustrated with official photographs.

**SAVE WASTE PAPER
FOR WAR PRODUCTION**



ROBERT GAIR COMPANY, INC., NEW YORK • GAIR COMPANY CANADA LIMITED, TORONTO
Folding Cartons • Box Boards • Fibre and Corrugated Shipping Containers



★ Twisting a piece of wire sounds like a simple matter, but actually, in the making of better springs, it is quite a significant operation. By evaluating the results of a twist test, the Muehlhausen spring technician is able to select stock that will withstand the torsional strains to which springs are subjected in use.

In this test, a specimen of wire, held between two chucks of a specially designed laboratory machine, is twisted clockwise and counter-clockwise a predetermined number of times. Weakness is revealed by premature breakage or the opening of hidden seams. Only wire that can withstand the punishment of the twist test is approved for production.

Scores of such tests are conducted daily at Muehlhausen to make sure that every spring leaving this factory will perform with maximum efficiency and long life.

MUEHLHAUSEN SPRING CORPORATION

Division of Standard Steel Spring Company
675 Michigan Avenue, Logansport, Indiana

TWO NEW FOLDERS—FREE

New booklet explains factors involved in correct spring design. Die Spring Bulletin illustrates, describes 206 sizes and types of die springs.

MUEHLHAUSEN



SPRINGS

EVERY TYPE AND SIZE

One purpose...

the IMPROVEMENT of Metals



Bracket Type Forging in which a high strength-to-weight ratio is obtained by forging in a set of locked, closed impression dies which form this part to close tolerances.

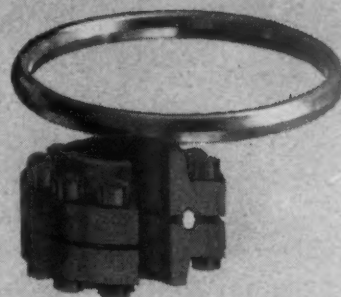


by Forging

Close temperature and processing control is a vital factor in developing the maximum metal quality in a forging of this shape. Maximum strength and toughness result from utilizing the exact production technique required for the utmost **IMPROVEMENT OF METALS BY FORGING**. Throughout 31 years of technical production effort, our engineers have utilized, over and over again, all of the known forging techniques; frequently improving a technique in order to obtain maximum metal quality. Consult one of our forging engineers for suggestions on how to produce such parts to close tolerances.

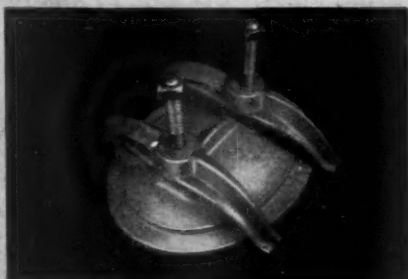
DROP
THE STEEL IMPROVEMENT & FORGE CO.
FORGINGS 943 East 64th Street • Cleveland, Ohio

GRUV-SEAL "FORGED-IRON" RING GASKETS make pressure proof joints



With Gruv-Seal "Forged-Iron" Ring Gaskets Wrench Pressure Molds a Tight Seal That Stays Tight. These gaskets are manufactured by a special forging method which reduces metal porosity to a minimum and interlocks the metal fiber flow lines into a dense tough structure such as is obtained by no other fabricating process. Gruv-Seal "Forged-Iron" Ring Gaskets can be applied to all types of flanged fittings when grooved. They should be used at all valve bonnet joints, flange connections, and at joints where ready disassembly is a necessary requirement. Gruv-Seal Ring Gaskets are made in a wide range of sizes, including all standard A. P. I. sizes. Write for Gruv-Seal Gasket Booklet No. 20.

Diamond "S" Boiler and Tank Accessories were developed as the result of scientific analysis of requirements of pressure vessels and the practical application of well-known and highly desirable engineering principles. The outstanding advantage available from these units is a more generous margin of safety for the protection of both men and materials.



Diamond "S" Boiler and Tank Accessories include Manhole Cover Assemblies, Handhole Cover Assemblies, Welding Street Ells, Welding Fittings, Standard Flanges, Water Column Ells, Welding Necks. All

Diamond "S" Boiler and Tank Accessories fully meet and exceed A. S. M. E. requirements for steel use in



pressure vessel parts and are approved by the Bureau of Marine Inspection and Navigation for rated pressures.

DIAMOND S BOILER TANK ACCESSORIES



A complete line of forged steel boiler and tank accessories is illustrated described and listed in Catalog No. 10, which also contains technical data and general information about these products. Write for a copy of Catalog No. 10.

**THE STEEL IMPROVEMENT
& FORGE CO.**

943 East 64th Street • Cleveland, Ohio

SPEED + ENDURANCE
= LOW COST PER CUT

MILFORD
 CLASS A
 HIGH SPEED STEEL
REZISTOR
 14"
 1 1/4"
 .065
 6T

★ MILFORD ALL-HARD REZISTOR HACKSAW BLADES

All the "know-how" of the art is common, everyday practice to the men who make Milford Rezistor . . . the blade that has everything needed for fast, low-cost, uniform cutting. Hand blades have the same quality and stamina.

- Hand sizes have easy-starting teeth.

TESTS conducted by a Railroad Company on a high-speed rail cutting machine, under competent engineering direction, found that the Milford Rezistor was the best blade for their purpose . . . cutting as well and lasting as long as 18-4-1 Tungsten High-Speed Blades . . . at much lower cost per cut.

THE HENRY G. THOMPSON & SON COMPANY

Saw Specialists Exclusively for Over 65 Years

NEW HAVEN, CONNECTICUT, U. S. A.

also manufacturers of Milford Profile Saw . . . the blade for all contour and profile band saw machines.

(Continued from page 262)

C. M. Mackey has been named manager of the southwest district for Westinghouse Electric Supply Co. He will make his headquarters in Dallas.

William J. Van Vleck has been appointed manager of the Atlantic office of Worthington Pump and Machine Corp.

J. P. Larkin has been appointed chief metallurgical and sales engineer of Firth-



Sterling's steel division, McKeesport, Pa. For two years he served in the Alloy Steel branch of the War Production Board while on special leave from Crucible Steel Co.

A. D. Hammond has been named southern district manager for Graybar, with headquarters in Atlanta. His territory will include offices and warehouses in Alabama, South Carolina and Tennessee.

G. Rider Neff has been named general sales manager for the Cleveland Cap



Screw Co. He was formerly associated with Lamson & Sessions Co.

L. B. Westfall has been appointed Ohio Valley district manager for Graybar Electric Co., Inc. with headquarters in Cincinnati. Another district appointment was that of **C. E. Furber** who will take over the duties of manager in Columbus, Ohio.

John B. Girdler has been appointed sales manager, eastern district of the Vanadium Corporation of America with headquarters at 420 Lexington Ave., New York City.

Paul A. Herr and **Harris H. Robbins** have been named field engineering representatives of Kennametal Inc., Latrobe, Pa. They will be assigned to the Philadelphia branch personnel.

(Continued on page 268)

There is no one ideal plastic material. Because of the variety of available plastic materials, each with clearly defined characteristics, the General Electric Company has installed facilities for the manufacture of various types for molding and fabricating in its five plants. Careful selection of the right material is all important.

Come to General Electric to be assured that the material recommended for your application will be selected from a vast number of compounds and engineered for a process of manufacture that will assure you of both sound material selection and the resultant economical plastic parts. From cold molding through compression, injection and laminating to low pressure molding, General Electric runs the gamut of plastics manufacture. G-E plasticians will give you the benefit of impartial recommendations. For further information write Section B-210, One Plastics Avenue, Pittsfield, Mass.

Hear the General Electric radio programs: "The G-E All-girl Orchestra" Sunday 10 P.M. EWT, NDC. "The World Today" news every weekday 6:45 P.M. EWT, CBS.

FIFTY YEARS IN THE PLASTICS INDUSTRY

BUY WAR BONDS

PD-210

GENERAL  ELECTRIC

YOU GET:

- *Faster Sawing*
- *Longer Service*
- *Lower Cost*

with
**VICTOR
BLADES**



Here's just what you've been looking for — a practical textbook "Metal Cutting", which gives suggestions on the selection, use and care of hack saw blades. Write Victor Saw Works Inc., Middletown, N. Y., for your free copy.

VICTOR

Makers of hand and power hack saw blades, frames, and metal cutting band saw blades.

7078

(Continued from page 266)

Ches Herndon has been named manager of the Houston office of Tube Turns, Inc.

Walter A. Furst has been appointed district representative in the Pittsburgh area for the Storage Battery Division of Philco Corp.

James L. Buckley has been appointed vice president in charge of the newly-



created eastern division of Georgia Hardwood Lumber Co. His headquarters will be at 20 Exchange Place, New York City.

A. C. Kacher has been appointed manager of the Minneapolis, Minn. branch for the Westinghouse Electric Supply Co.

V. K. Stallford will take over the duties of District merchandising manager in Detroit for Graybar Electric Co., Inc. He will supervise distribution and sales of electrical appliances, radios, and hearing aids in that area.

Philip S. Hill has been named general sales manager of the Hyster Company,



Portland, Ore. He comes from Peoria where he was assistant manager of the company's eastern division.

Harold A. Hintz will head the new offices serving the west coast for H. K. Porter Co., Inc., of Pittsburgh, Pa. and subsidiaries. He will headquarter in Los Angeles.

C. Leslie Jamison has been appointed vice president in charge of sales for the Strauss Company Division of Portable Lamp and Equipment Co. He will maintain headquarters in the former offices of the Strauss Co. in Pittsburgh.

F. Jerome Tone, Jr. has been named vice president in charge of sales for the Car-

borundum Co., Niagara Falls, N. Y. He succeeds Senior Vice President Charles Knupfer who has been assigned to special sales and executive activities.

Ray W. Carlson has been made sales manager of S. C. Johnson & Son, Inc., Racine, Wis. Under direction of the Sales Vice President P. M. Petersen, Mr. Carlson will supervise the operation of the field sales organization.

Thomas R. Horan has been appointed sales manager of the Superseal Tube Fittings Department of the Grinnell Co., Providence, R. I.

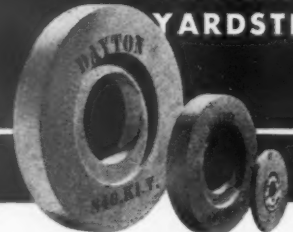
W. A. Bowen has been named national sales manager of Birds Eye—Snider, Inc. Mr. C. D. Suydam will succeed Mr. Bowen as central division sales manager.

W. A. Meyer has been appointed manager of dealer sales of the Allis-Chalmers Manufacturing Co., Milwaukee, Wis. Mr. Meyer has been particularly active in the field of multiple V-belt power transmission and holds patents on V-belt splice and adjustable sheave developments.

Dr. Edgar S. Ross, having completed his duties with the Petroleum Administration for War, has returned to the Sun Oil Company, Philadelphia, Pa., where he will devote his time to the development of technical sales with the Industrial Products Department.

(Continued on page 270)

A PROVED SURFACE GRINDING YARDSTICK



If you are feeling your way on some surfacing operation . . . seeking a wheel of the grain, grade and structure that will do the job as your "spec" requires—use the 846 K-1-V Dayton as your "yardstick".

You may find, as so many have found, that it's exactly the wheel you are looking for. If not, you will find it at least surprisingly "close" to what you've got to have. So close, in fact, that selection of the correct wheel can then be made without further experimentation.

To save time, money, worry—put this 846 K-1-V Dayton to the test now. Made in a wide range of sizes—with trial wheels shipped from stock.

WIRE, WRITE OR PHONE TODAY
SIMONDS WORDEN WHITE CO.
708 NEGLEY PLACE,
DAYTON 7, OHIO



.. IS AVAILABLE FOR TRUCKS AND TRAILERS

Yes, you can again build lightweight aluminum truck and trailer bodies. And metal is available for reconditioning those prewar jobs that have been worked so hard all during the war. W.P.B. now permits the use of aluminum for these important purposes.

The lighter weight of aluminum bodies means that, for equal loadings on power plants, tires and brakes, trucks and trailers carry more weight. These greater payloads result in fewer trips to deliver an equal amount of goods. You save on manpower, reduce operating expenses, and fewer pieces of equipment are required.

The sturdiness of aluminum construction, coupled with the corrosion-resisting ability of aluminum, means less manpower is needed for upkeep. Its



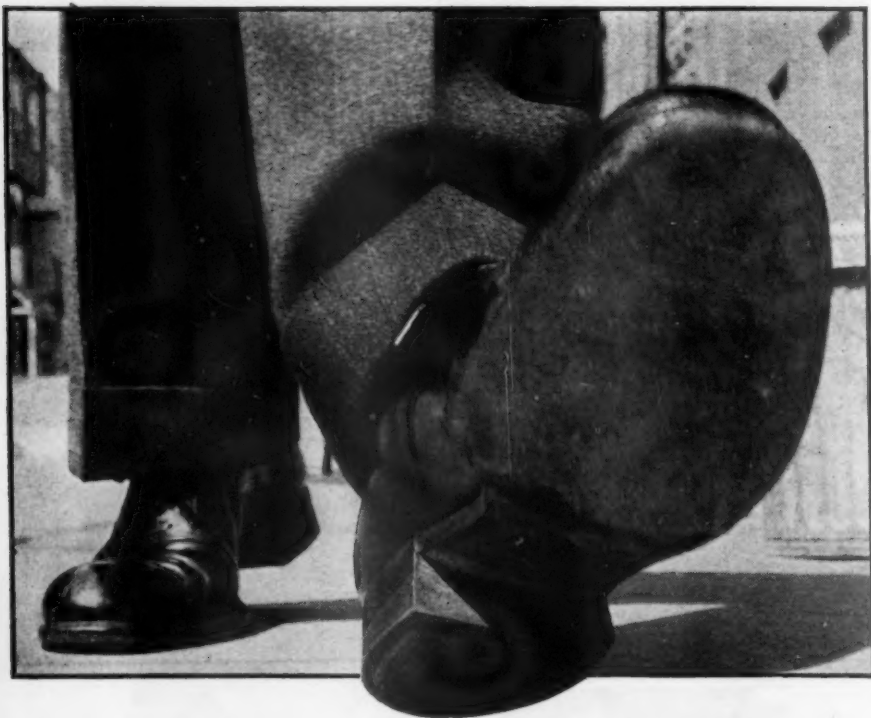
fine appearance is a morale and business builder.

Aluminum sheet for siding, special extruded shapes for body work, are in Alcoa's distributors' stockrooms, ready for your requisition. Perhaps you can't get the large size sheets you're accustomed to working with, but take the smaller sheets. Aluminum bolts and rivets are in stock for assembly work.

Send for the new booklet listing the Alcoa Aluminum sheet, shapes and fittings in stock. Then, you can proceed with that design job. Write ALUMINUM COMPANY OF AMERICA, 1931 Gulf Building, Pittsburgh 19, Pennsylvania.

ALCOA ALUMINUM

REG. U. S. P. O.



..... In Step With Your Needs

You need not go out of your way to buy Socket Head Cap Screws, Socket Set Screws, Stripper Bolts, Pipe Plugs, Square Head Dog Point Set Screws, Keys, or other Standard Screw Products manufactured by The Chicago Screw Company. These fine products are sold only thru authorized distributors—and there is one near you, ready to take care of your requirements.

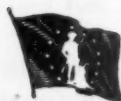
You'll find our distributors carrying adequate stocks, and accustomed to giving prompt attention to all orders placed with them.

All "Chicago" Standard Screw Products are put up in sturdy packages, assuring adequate protection against damage while in stock or in transit. Cartons and boxes are clearly marked for quick, easy, sure identification.

You will be pleased with the superior quality of "Chicago" Standard Screws, and more than satisfied with the service of our distributors.



*These Fine Products are sold
only thru Authorized Distributors*



THE CHICAGO SCREW CO.

ESTABLISHED 1872

1026 SO. HOMAN AVENUE CHICAGO 24, ILL.

(Continued from page 268)

Clifford W. Smith has been appointed comptroller of sales for the Western Electric Co., New York City.

Russell H. Foss has been appointed district sales manager of the New York district of Hazard Wire Rope Division of American Chain & Cable Co., Inc.

J. A. Mayer will become Atlantic district manager for Graybar Electric Company effective November 1. He will bring to his new position more than 31 years of experience with the company.

Peter B. Kline has been named manager of Eastern sales, and Thomas L. Moore has been assigned as manager of Western sales of the Rustless Iron and Steel Corporation. Both Mr. Kline and Mr. Moore will maintain offices at Baltimore, Maryland.

Colonel Walter F. Siegmund has been named general sales manager for the Olin Corporation with headquarters at East Alton, Illinois. He was honorably retired from active duty in the Army Air Corps, after having successfully completed his missions at Lincoln, Nebraska.

Wilbur E. Geiser, who has been on loan for the last eight months to the scheduling department of the WPB valve and fittings section, has returned to his post as manager of the Philadelphia office of Tube Turns, Inc. The company also announced the reopening of its Los Angeles office with James H. Withers in charge.

INDUSTRIAL DEVELOPMENTS

John F. Daley has been appointed general manager of the Pigments Department of E. I. du Pont de Nemours & Co.

J. H. Jewell has been made manager of the Industrial Departments of the Westinghouse Electric & Manufacturing Co.

Robert R. Cole, vice president of Monsanto Chemical Co. and general manager of the phosphate division, has been elected member of the Board of Directors.

Charles M. Switzer has been appointed director of nylon production for E. I. du Pont de Nemours & Co. He has been head of cellophane production since 1935.

The Diamond Crystal Salt Co., Inc., St. Clair, Mich. has issued a 24 page fact book, called "The Story of Diamond Crystal Salt". It starts its story from the time it is drawn from a depth of 2500 feet below the earth until it is packaged.

The Adylite Corporation, Detroit, Mich. celebrates this month the completion of 25 years of activity in the field of metal finishing. L. K. Lindahl is president of the organization.

(Continued on page 274)



Move it with a **FORK TRUCK**

A NATION of highly skilled workers making products of precision quality on a mass-production scale—is an ideal post-war America.

Train unskilled workers to be skilled workers—starting now.

One trained man using a Clark Fork Truck does the work of ten unskilled workers.



“Unskilled labor adds nothing to a product except cost.”

CLARK TRUCTRACTOR
BATTLE CREEK, MICHIGAN, U.S.A.

OTHER CLARK PRODUCTS—AXLES (Front and Rear) FOR TRUCKS AND BUSES • AXLE HOUSINGS • TRANSMISSIONS • METAL SPOKE WHEELS
ELECTRIC STEEL CASTINGS • GEARS AND FORGINGS • RAILWAY TRUCKS • BLIND RIVETS • HIGH-SPEED DRILLS AND REAMERS

Inside information on POWELL VALVES



From the outside, this small size 200-pound "White Star" bronze Globe Valve looks very much like the same type of valve in other makes. But inside, where it really counts, Powell design and engineering show the results of nearly a century of "know how" in Valve making.

Among its many features are the regrindable and renewable semi-cone plug type seat and disc, especially designed for severe service conditions. The disc is made of "Powellium," a special nickel-bronze alloy developed by Powell Engineering. The seat ring is furnished in a specially heat treated Stainless Steel. Both are highly resistant to corrosion and erosion.

Of interest, particularly to maintenance men, is the fact that this valve can be re-packed under pressure when wide open. This feature is provided by the machined face on the base of the bonnet which, engaging with the cut-off collar machined on the top of the disc lock nut, positively seals off the pressure from entering the bonnet. An exceptionally wide and deep stuffing box affords generous packing space. The protruding gland, held in place by a large stuffing box nut, also affords an additional guide for the stem.

The ground joint union body-bonnet connection, held fast by a heavy hexagonal ring nut, permits the bonnet to be easily and quickly removed from and re-attached to the body any number of times without impairing the tightness of the connection.

Ample space between the end of the pipe thread and the diaphragm prevents the pipe striking the diaphragm and distorting the seat when screwing the pipe into the body.

The malleable iron non-heating handwheel is designed to fit the hand and afford ease in operating the valve.

The complete POWELL Line includes Globe, Angle, Gate, Check, Relief, Y, Non-Return and other types of valves in bronze, iron, steel, pure metals and special alloys to meet the demands of all branches of industry for dependable flow control equipment.

The Wm. Powell Co.

Dependable Valves Since 1846
Cincinnati 22, Ohio

This valve, especially adapted for controlling steam, gas, oil, water and many other fluids, is giving unfailing service in thousands of plants throughout the United States.

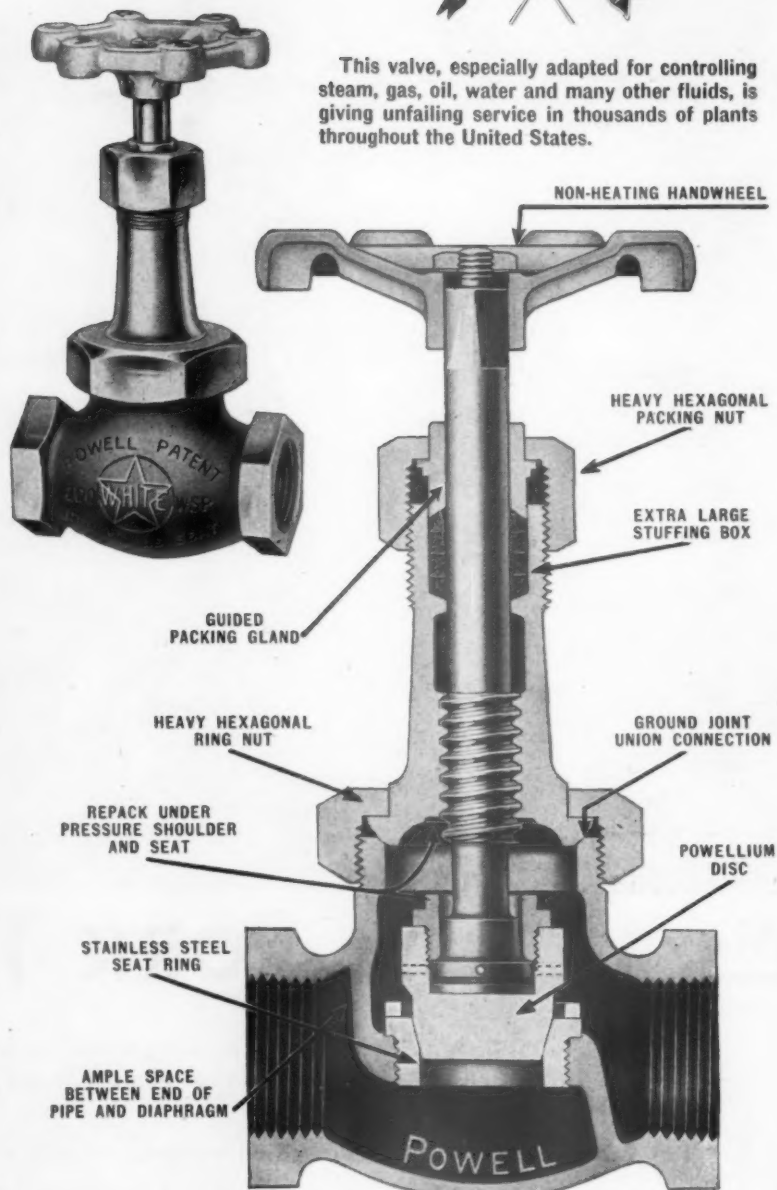


Fig. 1708
BRONZE "WHITE STAR" GLOBE VALVE

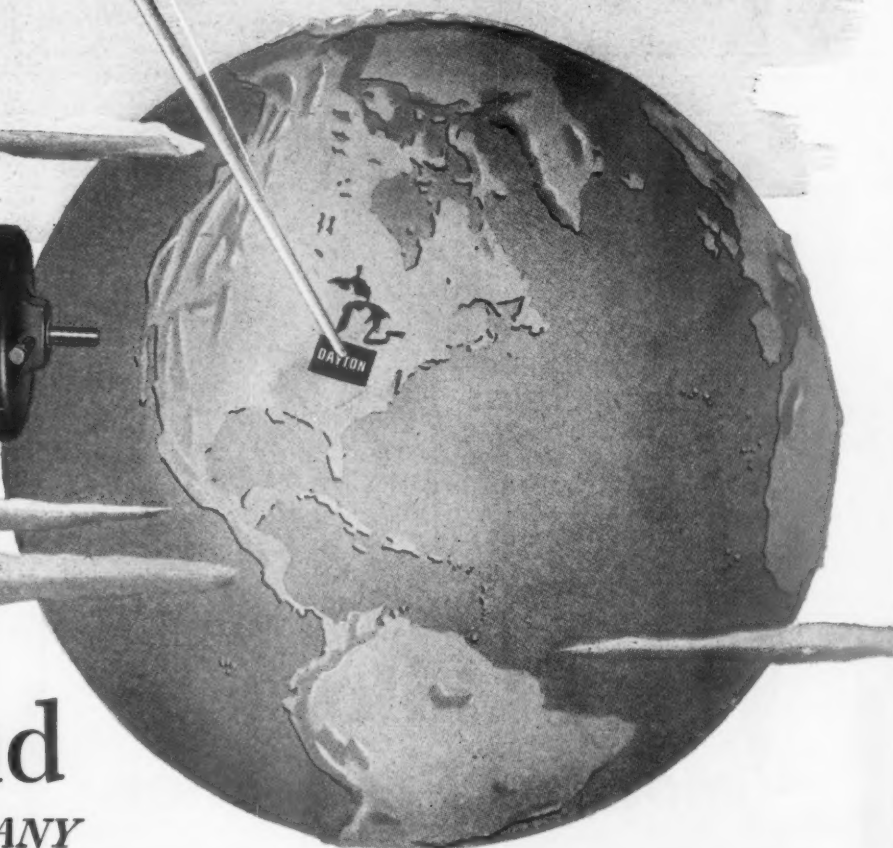
POWELL VALVES

CREATIVE ELECTRICAL ENGINEERING

There are few industries in which post-war planning does not involve *Creative Electrical Engineering* ability of the highest order. The exacting competitive situation developing demands topnotch skill.

On its record, LELAND Electric has earned your consideration. Our experience and ingenuity in solving tough electrical problems may prove immensely valuable to you.

We invite you to consult with us.



THE Leland
ELECTRIC COMPANY

DAYTON 1, OHIO

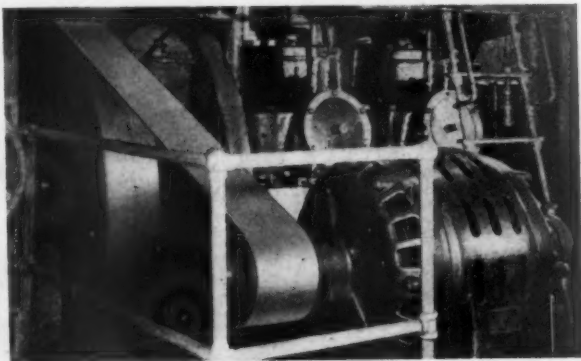
In Canada: Leland Electric Canada Ltd., Guelph, Ontario

Alternator

Self-excited, can be used with electric motor or gasoline drive, up to 2½ KW output, general purpose electric power supply.

Rhoads Engineering Service

can show you
the way to get



Economical Power Transmission and Longer Belting Life

Rhoads Engineering Service has shown many plants the way to get more efficient drives, requiring less maintenance through the application of Tannate Leather Belting.

Tannate has unusual strength (1-3 to 1-2 higher than choice oak belting) and a firm pulley grip that assures maximum machine output. It is resistant to moisture, machine oils and many weak chemicals.



J. E. RHODS & SONS • Established 1702

35 NORTH SIXTH STREET, PHILADELPHIA 6, PA.
NEW YORK • CHICAGO • ATLANTA • CLEVELAND

(Continued from page 270)

Continental Can Co., Inc. has acquired the business of Mono Service Co., Newark, N. J., manufacturer of paper food containers. It will be operated as a division of the company with the same personnel and policies.

National Battery Company will construct and equip a new testing laboratory for its Gould Commercial Division plant at Depew, N. Y.

Mechanical Specialties Division of Wickwire Spencer Steel Company has moved from its New York offices to Clinton, Mass. A district sales office will continue to be maintained at the New York address.

Charles Roebbling Tyson has been elected president of the John A. Roebbling's Sons



Co. Trenton, N. J. Mr. Tyson is a great grandson of the founder. Two other great grandsons are in active, responsible positions: F. W. Roebbling III, vice president of the company and now a U. S. Army Lieutenant Colonel, and Joseph M. Roebbling, chairman of the board, now serving as Lieutenant with the U. S. Army Air Corps.

Allegheny Ludlum Steel Corp. has purchased property in St. Louis, Mo. from the National Refining Co. which will be used as a district office and warehouse.

The Mathieson Alkali Works, Inc. is producing ammonia at its new plant at Lake Charles, La. The plant was built by the Defense Plant Corporation and is operated under lease by Mathieson.

Universal Wheel & Abrasive Corp., Chicago, Ill., has announced its intention of moving into a larger plant in fall, 1944. Construction of a new building is under way, covering the entire block on Kinzie Street between Ashland and Marshfield Aves., Chicago.

Mitchell Manufacturing Co. has announced consolidation with the Tru-Ad Co. of Los Angeles, Calif. It will be operated as the Tru-Ad division of the company.

Optimus Equipment Co. has been organized at Matawan, N. J. to design and manufacture a line of metal cleaning equipment. It will function in close affiliation with the Hanson-Van Winkle-Munning Co.

(Continued on page 276)



**BEARING
LOCKNUTS**
N 00 TO AN 40
★
STANDARD
★
HEAVY DUTY
★
SPECIAL
★

ital Links in modern Production

**ALLIED MACHINE &
ENGINEERING CORP.**
NEW PHILADELPHIA, OHIO



**WHERE WILL THE
MONEY COME FROM
TO MAKE HIS
AMBITIONS COME TRUE?**

YOU'LL find an important part of the answer in rural America . . . and the towns and small industry that are a part of the warp and woof of it!

There you'll find the fertile soil that will nourish the enormous purchasing power America must have to make our soldiers' ambitions come true.

All America . . . and American Industry in particular . . . has a stake in its continued well being.

Does this mean that sub-contracting so vital to the accomplishment of the miracle of American War Production is to be a factor of Post-War Production?

Will sub-contracting result not only in spreading the purchasing power but in providing a more efficient manufacturing procedure which in turn will make available more and better goods to more people?

As sub-contractors . . . as an organization located in one of America's smaller communities in the heart of the Middle West . . . to us, the answer is plain.

It is YES.

And while we of American Industry are now putting plans into action to make the miracle of post-war production come true . . . let us redouble our efforts in support of War Bond Sales whose essentiality for financing the war and providing an important base for post-war purchasing power is recognized by all of us.



This message is published in the interest of War Bond Sales and a prosperous post-war America of Free Enterprise by Burgess-Norton Mfg. Co., the services of whose Engineering staff, Metallurgical and Research Laboratories are available now to the manufacturers who will require piston pins, screw machine parts, heat treated and ground steel products, hydrogen copper brazing, non-precision ball bearings and related fabricated steel products.



Burgess Norton
MANUFACTURING COMPANY

40 years in GENEVA, ILLINOIS

A Part is Never Made Right unless it is Satisfactory to Our Customers



FOR
Fine
WORK-
THIS FINE
SILVER ALLOY
BRAZING FLUX!

SCAIFLUX

PROVED IN WAR'S TOUGHEST APPLICATIONS

**—ready to solve your
Brazing Problems NOW!**

This scientifically-compounded, low surface-tension flux for silver alloy brazing brings new perfection to close-tolerance work. Transformed from paste to an *adhesive liquid* at a temperature of 160 F., SCAIFLUX is ready to be brushed-on without water—forming a thin, transparent layer of high adhesive quality. This major feature can greatly advantage your brazing operations . . . get the *whole* SCAIFLUX story in Bulletin No. 316.

SCAIFE COMPANY

GENERAL OFFICES AND WORKS: OAKMONT (Pgh. District), PA.

Representatives in Principal Cities

(Continued from page 274)

James L. Dunn has been elected to the post of vice president in charge of In-



dustrial Relations of Jenkins Bros. He has been assistant plant manager of the Bridgeport works.

Allegheny Ludlum Steel Corp., Pittsburgh, Pa., has purchased warehouse property in St. Louis, which further rounds out the company's post-war distributing plans.

The Industrial Chemical Division of Hercules Powder Co., Wilmington Del., has discontinued the resale of a number of industrial chemicals made by other manufacturers. This change is being made to concentrate upon products of Hercules' own manufacture. Sales representatives stationed at local points have been given an opportunity to acquire for their own account the business being discontinued by the division.

Sell-O-Vision, a publication by the Bemis Bro. Bag Co., has made its first appearance in the 1944-45 season. The first issue contains items on postwar foods and merchandising.

**MERIT AWARDS
ARMY — NAVY — MARINE**



Group at Jenkins, Bridgeport plant raising Army-Navy flag.

E. I. duPont de Nemours & Co., Perth Amboy Plant. Second white star for Army Navy "E" flag.

Minute Tapioca, Inc., Orange, Mass. War Foods Administration Achievement "A".

Macwhyte Wire Rope Co., Kenosha, Wis. Third Army-Navy "E" award—second star for "E" flag.

Fasteneering

TRADEMARK REG. U. S. PAT. OFF.

by CENTRAL

BEGINS AT THE BLUEPRINT STAGE...

STOVES
REFRIGERATORS
AIR CONDITIONERS
AUTOMOTIVE
FARM EQUIPMENT
APPLIANCES
RADIOS
TOYS
IMPLEMENTS
INSTRUMENTS
MACHINES

Fasteneering — make note of the name . . . Fasteneering by Central Screw Company. When peacetime products appear on the postwar market, Fasteneering shall be associated with the successful development and sale of many well-known items of everyday use.

WHAT IS FASTENERING? It is a technique developed through years of experience at Central Screw Company, a method that simplifies your complex assembly at the blueprint stage, that creates parts designed especially for your assembly and produces them in large quantities by the cold forged process at remarkably low costs.

Examine the items shown on this page. They are typical Fasteneered units made by the "cold upset" method. Although they resemble machined parts, they are brighter in appearance—stronger under torsion—cost much less. Send today for New 8-Page Booklet illustrating a wide variety of special operations and parts that will enable you to visualize "Fasteneering" as applied to your product. No obligation. Write

STANDARD PRODUCTS:

MACHINE SCREWS

STOVE BOLTS

LOCKWASHER SCREWS

SELF-TAPPING SCREWS

MACHINE SCREW NUTS • WING NUTS • THUMB SCREWS • CARRIAGE BOLTS • MACHINE BOLTS • RIVETS • STUDS • RODS



You can depend on Central

CENTRAL SCREW COMPANY

3523 SHIELDS AVENUE • CHICAGO 9, ILLINOIS



CASTINGS

- ★ Gray Iron
- ★ Semi-Steel
- ★ High Test Semi-Steel
- ★ Any Size up to one ton

Two modern foundries equipped for fast, efficient production can meet your casting requirements.

THE
FOREST CITY
FOUNDRIES CO.

2500 West 27th St.
Cleveland 13, Ohio

PHONE Prospect 5040

(Continued from page 276)

McGraw Electric Co., Toastmaster Div., Elgin, Ill. Second star on Army-Navy "E" flag.

Divine Bros., Utica, N. Y. Fourth Army-Navy "E" award.

Stanley Works, New Britain, Conn. Second star on Army-Navy "E".

Gould Storage Battery Corp., Depew, N. Y. Second Army-Navy "E" star.

Sylvania Electric Products, Inc., Boston Street and Danvers plants. White star on "E" flag.

Titellex, Inc., Newark, N. J. White star on Army-Navy "E" burgee.

Firth Sterling Steel Co., McKeesport, Pa. Second star on "E" flag.

Jenkins Bros., Bridgeport, Conn. Fourth star on Army-Navy "E" flag.

Mine Safety Appliances Co., Pittsburgh, Pa. Army-Navy "E" award.

Ingalls Iron Works Co., Verona, Pa. Plant. Army-Navy "E".

Philco Storage Battery Div., Trenton, N. J. Fourth star on Army-Navy "E".



Army-Navy flag is presented to Philco Storage Battery Div.

WPB-OPA DIGEST

Krug Names J. D. Small as Office Executive—WPB—WPB Chairman J. A. Krug announced that he has completed topside organization of WPB with the appointment of John D. Small as Executive Officer in the Office of Chairman.

Bicycle Rationing Ends—OPA—Bicycles, permitted to be made only in two of twelve bicycle plants in last two years, may again be produced on an industry-wide basis.

Utility Construction Order—WPB—Construction of certain utility buildings, formerly restricted by Conservation Order L-41 and by Utilities Orders U-1, U-3 and U-4, is now restricted only by the utilities orders.

Cooking Equipment—WPB—Manufacturers of commercial cooking equipment

will be in a position to resume production for civilian market when cutbacks in war orders occur and manpower situation improves.

Steel Supplies Assured—WPB—Even with relaxation of WPB controls and elimination of steel allocations that will take place when large scale reconversion is possible, small business will receive supplies of steel needed for civilian production on an equitable basis with big business, Iron and Steel IAC assured WPB.

Gray Iron Castings—OPA—Gray iron castings sold by regular resellers as parts or sub-assemblies of kinds listed in Appendix A or B of MPR 136 were removed from coverage of castings regulation (MPR 244).

Order L217 Revoked—WPB—The construction machinery and equipment simplification and conservation order, and its ten schedules, which limited the manufacture of these items to certain sizes or types has been revoked by the WPB.

Motors Control After V-E Day Recommended—WPB—Maintenance of present WPB controls on commercial type motors, even after victory in Europe is assured, in order to distribute properly supply of motors among all companies manufacturing civilian items such as washing machines, refrigerators and vacuum cleaners, was recommended at a meeting of the Fractional Horsepower Motor Labor Advisory Committee, WPB reported.

Chlorine Still Short—WPB—"Chlorine allocations should be continued for at least one month after Victory in Europe Day," the Chlorine Alkali Industry Advisory Committee recommended to WPB.

Molybdenum Scrap Content—OPA—The maximum molybdenum content of scrap that may be priced as segregated high and medium tungsten tool steel scrap, formerly fixed at one per cent by specifications of the tool steel scrap regulation, has been increased to one and one-half per cent, the OPA announced.

September Plane Production Schedule—WPB—Aircraft production in September totaled 7,598 airplanes of all types, representing 98 per cent of schedule, despite the fact that it was a short work-day month of 26 days, including a Labor Day week-end. WPB announced that almost all companies met their program.

Silica Gel Under Order M-300—WPB—Because of heavily increased military demands for desiccant grade of silica gel for moisture-proof packaging of war material sent to combat areas, WPB placed chemical under the control of Order M-300, general chemicals order.

Glass Containers—WPB—Control over use of glass containers has been relaxed substantially through an amendment of Glass Containers Quota Order, L-103-b.

(Continued on page 282)



Save Time... Save Labor... Save Battery Power

Send for This New Catalog Today

You'll find ten exclusive reasons why it will pay to standardize with G-E copper oxide rectifiers for maintenance of electric truck batteries. You'll see at a glance how users of G-E rectifiers save time, labor and battery power. Photographs and selection tabulations included in the catalog make it simple to choose the exact model G-E rectifier for all types of electric truck batteries. For the complete story about G-E copper oxide rectifiers for battery charging clip and mail the coupon. A copy of this new catalog will be mailed without delay.

BUY WAR BONDS AND KEEP THEM

Hear the General Electric radio programs: "The G-E All Girl Orchestra" Sunday 10 P.M. EWT, NBC. "The World Today" news every weekday 6:45 P.M. EWT, CBS.

GENERAL  ELECTRIC



Section A1147-77
Appliance and Merchandise Dept.
General Electric Company, Bridgeport, Conn.

Gentlemen:—Please send a copy of the free new G-E Electric Truck Battery Charger Catalog Form No. 52-46

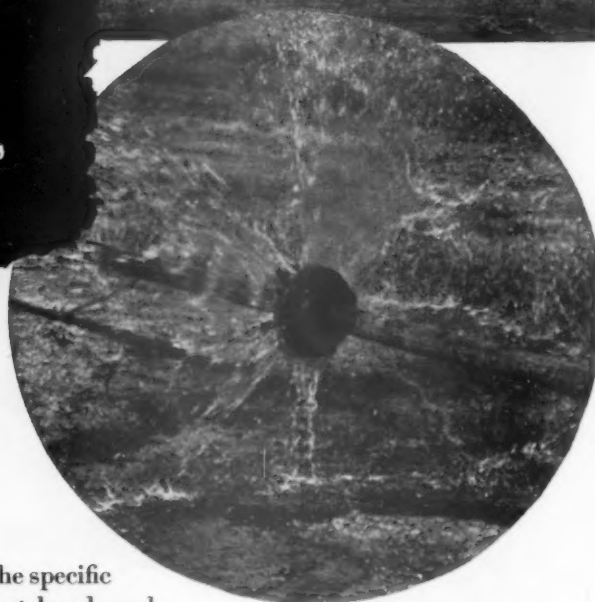
Name

Address

City.....State.....



Not Very Big . . . but
PLENTY "MEAN"



You can't always judge the *toughness* of a fire by its size. Some relatively small fires fight back so viciously . . . hang on so stubbornly . . . that they are harder to extinguish than many big blazes.

Extinguished in 20 Seconds

Here's a demonstration fire in which no punches are barred. Not very big. Just a broken flange on a pipe line, spraying gasoline into the air . . . 10 gallons a minute, feeding a fast-spreading flaming pool. *No sheltering walls and no large surfaces on the flange to retain or make easier the job of the extinguishing medium.* Specifications for a fire that's very tough to handle.

First picture above shows fire after gasoline had been allowed to spray for a full minute. Yet, Cardox CO₂, discharged at the rate of 700 pounds per minute from a single Cardox nozzle (as shown in middle picture) extinguished this fire in 20 seconds.

Protecting *hard-to-handle* hazards is the job of Cardox Fire Extinguishing

Systems engineered for the specific hazards and conditions at hand, and of Cardox Fire Trucks that put swift wheels under *tons* of carbon dioxide. Thanks to their distinctive ability to provide *mass* application of Cardox CO₂, Cardox Systems and Fire Trucks have taken over a roster of the toughest fire assignments in scores of war industries . . . and licked them to a standstill.

Enhanced CO₂ Performance

In Cardox Systems and Fire Trucks fast-acting, non-damaging carbon dioxide is given enhanced extinguishing performance because, as controlled and applied, Cardox CO₂:

- (1) Has uniform extinguishing char-

acteristics regardless of plant or atmospheric temperatures; (2) Is available in ample quantity for application at high rate; (3) Provides high CO₂ "snow" yield for increased cooling effect; (4) Achieves effective projection through relatively great distances.

Write on company letterhead for Bulletin No. 25114, containing data on Cardox Engineered Systems and Mobile Equipment applicable to protecting oil industry fire hazards.

CARDOX CORPORATION
BELL BUILDING • CHICAGO 1, ILLINOIS
District Offices in New York • Boston • Washington
Detroit • Cleveland • Atlanta • Pittsburgh
San Francisco • Los Angeles • Seattle

BUY WAR BONDS

CARDOX
CO₂ FIRE EXTINGUISHING SYSTEMS



At last we dare to hope for a change in America's industrial scene. Reduction in the manufacture of war machinery will naturally be followed by the increased production of articles of peace. But the war-learned techniques of fast, accurate production will be applied to speed the supply to a vast demand.

"FILMONIZE" Self-Sealing TAPES were created to fill the war-born demand for a seal against water penetration. Their bright colors will add glamour to your new packages. "FILMONIZE" numerical and alphabetical TAPES are assembly aids for wire or part identification in production.

Their use will be continued in new cars and new radios for tomorrow. "FILMONIZE" Self-Sealing TAPES will hold on damp surfaces, waxed surfaces, hot or cold surfaces.

"FILMONIZE" Self-Sealing TAPES have proved in war that their versatility will be employed in peace.

The target for tomorrow is a higher level of production. To achieve it, plan now for a greater use of all the production shortcuts "FILMONIZE" Self-Sealing TAPES can assure your plant.

Let your "FILMONIZE" TAPE Distributor show you how "FILMONIZE" can work for you.

"FILMONIZE" SETS NEW STANDARDS

- Easy to use . . . strips cleanly off the roll.
- No "curl-back" . . . no tangle . . . no waste.
- Fadeproof colors . . . printing sealed in.
- Widths from 1/2" to 18" throughout the line.



INTERNATIONAL PLASTIC CORPORATION

MORRISTOWN, NEW JERSEY

Address all inquiries to Dept. 38

★ FACTORY REQUISITION

- (1) Rust Preventive
to protect Equipment and Parts
in Process
- (2) Rust Preventive-Wrapper
for shipments

*Order Dearborn's
NO-OX-ID*

this Purchasing Agent
has authorized protection that's
GOOD FOR A DAY OR A DECADE!



● The 26-year performance record of NO-OX-ID, the *original* rust preventive, in protecting steel parts, machinery, and equipment, inspires purchasing agents to requisition it wherever rust must be stopped in its tracks.

NO-OX-ID protects equipment and parts in process, on the move, or destined for long-time storage, by covering them with a chemically inhibited wax-like lubricating film which excludes all vapor, moisture, and corrosion accelerators.

Coating consistencies graduate from light to heavy to withstand mild or severe handling and all weather conditions. Application...by brushing, dipping, or spraying.

NO-OX-IDized Wrapper, impregnated with NO-OX-ID's rust-inhibitive chemicals, conforms to irregular shaped objects and lines shipping containers to form an additional moisture-proof barrier. Complete data on NO-OX-ID and NO-OX-IDized Wrappers will be sent at your request.



The ORIGINAL RUST PREVENTIVE

Dearborn Chemical Company, Dept. AA, 310 S. Michigan Ave.,
Chicago 4, Illinois

(Continued from page 278)

Navy Bearing Orders—WPB—No overall substantial Navy cutbacks of anti-friction bearing orders comparable to Army cutbacks are anticipated after "Victory in Europe" Day the IAC was told at its meeting recently.

Electrical Installation Restrictions Lifted—WPB—Restrictions on installation of electrical conduit, electrical metallic tubing and raceways have been removed from Order L-225, which was recently amended.

Scrap Metal Order—WPB—In view of adequate supply of metal scrap, WPB revoked Order P-136, assigning preference ratings to processors of metal scrap for maintenance, repair and operating supplies.

Restrictions on Certain Uses of Cork Removed—WPB—Restrictions on delivery or use of cork for table mats, toys and games and several other novelty items were lifted by the WPB.

Ceilings for Second-Hand Containers—OPA—General increases in ceiling prices of second-hand paperboard shipping containers were announced by OPA in a move designed to stimulate greater return of these containers for re-use and thus relieve existing serious shortage of paperboard containers, both new and used.

Scrap Segregation Still Necessary—WPB—Although mandatory segregation and restrictions governing sales and melting of scrap have been eliminated from Aluminum Scrap Order M-1-d, WPB stressed fact that discontinuance in no way implies that the need for segregation has passed.

Lumber Firms in OPA Court Actions—OPA—Thirty-five court actions asking treble damages totaling \$2,000,000 have been filed by OPA this year against concerns charged with upgrading southern pine lumber to obtain higher than legal ceiling prices.

War Contract Terminations—OWI—To help war contractors and Government contracting agencies settle terminated war contracts faster, regulations for pre-termination settlement agreements were announced by Robert H. Hinckley, Director of Contract Settlement. (Regulation 3 issued with approval of advisory board composed of representatives of War Department, Navy Department, Treasury Department, U. S. Maritime Commission, FEA, RFC, WPA, SWPC and Attorney General.

Flashlight Limitation Order—WPB—Flashlight cases and other portable electric lights may be sold to fill unrated as well as rated orders within production and shipment quotas assigned to manufacturers, WPB announced.

Controls Allocation on Plastics Lifted—WPB—The Chemicals Bureau lifted allocation controls for civilian use over cellulose.

(Continued on page 284)

These four series of charts
show the basic properties of

MO-MAX

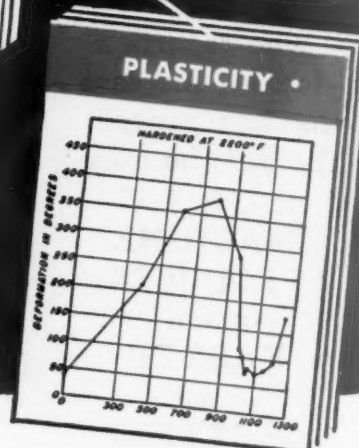
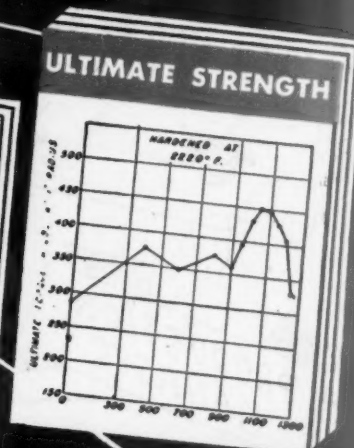
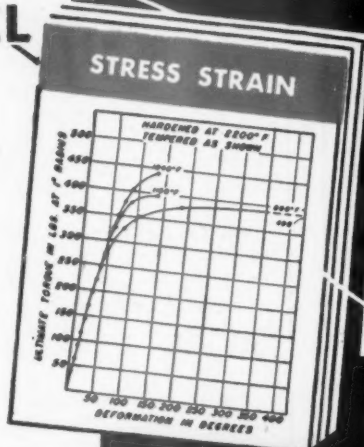
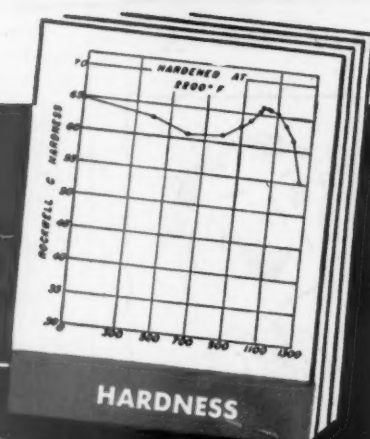
HIGH SPEED STEEL

which make it a

BETTER CUTTING STEEL

To demonstrate the working characteristics of MO-MAX high speed steel under a broad range of heat treatments a series of charts has been carefully prepared. These charts with explanatory text are shown in a new booklet. Photomicrographic comparisons with 18-4-1 high speed steel are included. A wealth of factual information on MO-MAX molybdenum-tungsten high speed steel is condensed into its 52 pages. It tells HOW — to select the steel for the job — to forge — to anneal — to weld and braze — to harden — to temper. This makes it a most valuable and authoritative contribution to the study of high speed steel.

MO-MAX YEAR AFTER YEAR
HIGH SPEED STEEL One Uniform Standard



5949

THEY'RE ALL MO-MAX

"LMW" Allegheny Ludlum Steel Corp.
"Mohican" Atlas Steels, Ltd.
"Bethlehem HM" Bethlehem Steel Company
"Mo-Cut" Braeburn Alloy Steel Corp.
"Star Max" The Carpenter Steel Co.

"Molite 8" Columbia Tool Steel Company
"Rex-T-Mo" Crucible Steel Co. of America
"Di-Mol" Henry Disston & Sons, Inc.
"Rex-T-Mo" Halcomb Steel Co.
"Mogul" Jessop Steel Company

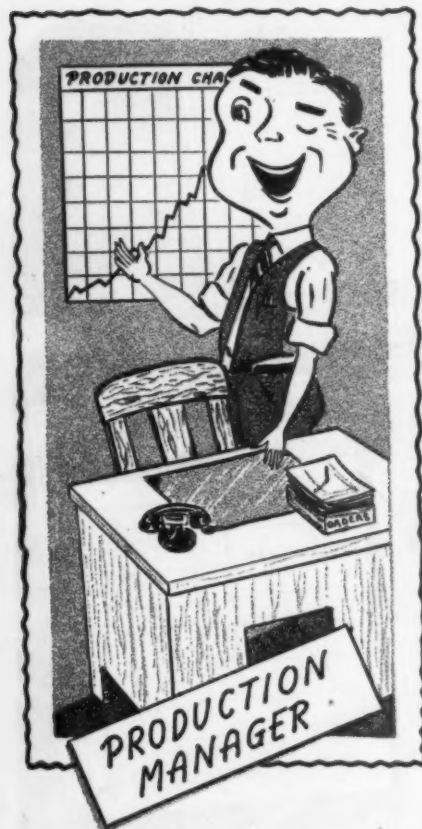
"Tatmo" Latrobe Electric Steel Co.
"S. T. M." Simonds Saw and Steel Co.
"Mo-Tung" Universal-Cyclops Steel Corp.
"8-N-2" Vanadium Alloys Steel Co.
"Vul-Mo" Vulcan Crucible Steel Co.

THE CLEVELAND TWIST DRILL CO., 1242 East 49th St., Cleveland 14, Ohio

PLEASE send
this book:
"The Story of
MO-MAX

Name _____
Address _____
City _____

PORTRAIT OF A



who reports a
decided increase
in total output
because he uses

**SCREW
MACHINE
PRODUCTS**

made
**FASTER
and
BETTER**

for
LESS

by

U.S. AUTOMATIC

CORPORATION

Screw Machine Products

AMHERST OHIO



Chicago Detroit New York

(Continued from page 282)

lose acetate butyrate, urea and melamine molding powder used in the manufacture of plastics.

Surplus Tank Cars—ODT—A recent order, modifying permit system for tank cars, is not to be construed as indicating existence of surplus tank cars for civilian use, Fayette B. Dow, head of Liquid Transport Department, ODT, announced.

Magnesium Control Lifted—WPB—All Government controls on use of magnesium for civilian products have been removed, WPB said in announcing revocation of Preference Order M-2-b. Simultaneously, WPB issued Order M-2-c, which provides that all restrictions on use of magnesium contained in other orders no longer apply.

Service Equipment—WPB—Any piece of building service equipment authorized or rated by WPB on special application form, or any piece of processing or service machinery or equipment, whether or not approved, may now be installed in existing building without permission under Conservation Order L-41, regardless of cost limits.

Oil Price Changes in East—OWI—Deputy Petroleum Administrator Ralph Davies announced three changes in price formula on petroleum products sold on assignment or reassignment in East Coast States.

Construction Machinery Sales Order Revoked—WPB—WPB revoked Order L-196, which controlled the sale of certain critical types of used construction machinery.

Civilian Gas Output Reduced—OWI—Petroleum Administrator for War Harold Ickes ordered U. S. refineries to reduce by 50% current production of premium gasoline for civilian consumption.

Shellac, Balsa Wood Removed from Control Order—WPB—Shellac and balsa wood are among sixteen commodities removed from governmental import control through amendment to General Imports Order M-63.

Utilities Operations Orders Amended—WPB—To simplify accounting and record-keeping under the Controlled Materials Plan, the WPB has amended orders affecting utilities operations.

Sodium Silicate—WPB—Order M-355, removing allocation controls from sodium metasilicate, used as a detergent for dish-washing and laundry equipment and for metal cleaning, was announced by WPB.

Secondary Metal for Can Production—WPB—The manufacture of cans from secondary metal—blackplate rejects andterneplate waste—for packing of 27 product classifications has been approved.

Jute Uses Broadened—WPB—Permitted uses of jute and jute products are broadened by amendment to Conservation Order M-70.

Urge Revision of Furniture Order—WPB—Revision of furniture order, L-260-a to permit development of new furniture patterns and to increase number of patterns that each manufacturer may offer at any one time, was recommended by Wood Furniture IAC at recent meeting.

Tools Order—WPB—Extent to which priorities assistance provided by Preference Rating Order P-43 may be used to get tools and tooling needed to make experimental models is clarified in Interpretation 2 to P-43.

General Chemical Order—WPB—Two amendments to Order M-300, General Chemicals Order are announced. All grades of acrylic monomer and acrylic resin (Schedule 17 to M-300) have been brought under control of order. Sodium cyanide has been transferred from Order M-366 to Schedule 45 of M-300 and small order exemption being reduced to 400 from 1,000 pounds.

Copper Wire—WPB—Unless projected requirements for copper wire and cable are materially altered, reduced military demands, after "V-E" Day, will permit copper wire and cable mill facilities to accept and deliver orders other than authorized controlled material orders in a pattern and of a copper content approaching pre-war levels, the Copper Wire and Cable Industry Advisory Committee was informed by WPB.

Boeschstein Named Deputy Operations V. C.—WPB—Appointment of Harold Boeschstein, Toledo, Ohio, as Deputy Vice Chairman for Operations of WPB, succeeding Wade T. Childress, St. Louis, Mo., was announced by Chairman J. A. Krug.

AMENDMENT TO ORDER L-41 ELIMINATES CONSTRUCTION RESTRICTIONS

Construction of certain utility buildings, formerly restricted by Conservation Order L-41 and by Utilities Orders U-1, U-3 and U-4, is now restricted only by the utilities orders, the War Production Board reports.

The change was made by amendment to Order L-41, which eliminates such construction from restrictions of that order.

By utility construction is meant any building or group of buildings to be used directly in furnishing electric, gas, water, central steam heating or wire communications services (telephone or telegraph).

Formerly, all utility construction was controlled by Order L-41, with a \$1,000 allowable exemption for the construction of any single unit building or group of buildings without obtaining WPB approval.

Under the amended order, only sewage system utility construction is retained in Order L-41, with a \$1,000 exemption allowed for any building or group of buildings that will be used directly for a sewage system and owned by a sewage system operator as defined in Order P-141.

BLUEPRINT YOUR POST-WAR FORGINGS REQUIREMENTS

Now!

At Kropp Forge we are already working with designers of postwar machines and equipment.

It is gratifying, though not surprising, to note that a more extensive use of forgings is involved in the equipment of the peacetime era. Forgings have liberally proved their worth in armament applications — notably in resistance to tensional, torsional and compression stresses. Forgings are coming out of the war with a greatly enhanced reputation.

Forgings provide metals at their ultimate strength. They save metal, weight and space because their greater strength permits the use of parts of less bulk. With forgings there is less incidence of internal defects and less scrap. Forgings require less time to machine and finish, with proportionately lower tool costs.

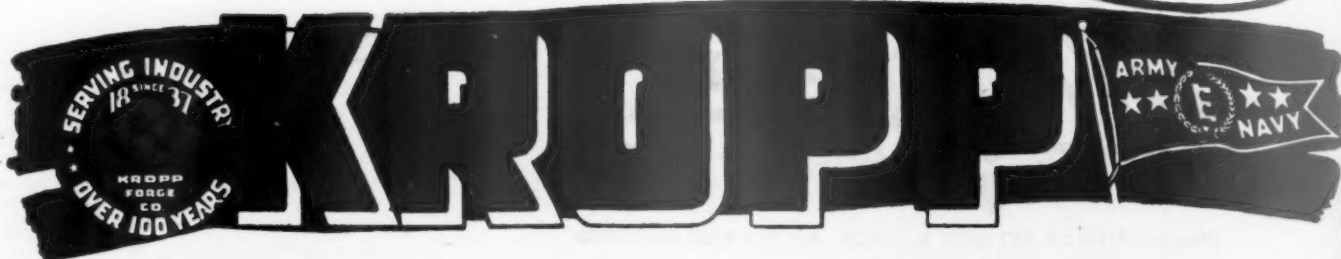
As our war assignments are completed, facilities at Kropp Forge are becoming available for essential civilian applications. Design your postwar products around sound Kropp flat die, drop or upset forgings.

KROPP FORGE COMPANY

5301 W. Roosevelt Road

Chicago 50, Ill.

Engineering Representatives in Principal Cities



AIR EXPRESS

the shortest distance between two points!



FAR SHORTER BY THE CLOCK—one mile is
20 seconds in the air!

SPECIFY AIR EXPRESS. Get your shipment
the fastest way!

NOTE TO SHIPPERS: Ship order when ready,
early-day shipping means quicker
delivery.

**A Money-Saving,
High-Speed Tool
For Every Business**

With additional planes and space available for all urgent cargo, 3-mile-a-minute Air Express directly serves hundreds of U.S. cities and scores of foreign countries. And shippers nationwide are now saving an average of more than 10% on Air Express charges—as a result of increased efficiency developed to meet wartime demands.

WRITE TODAY for "North, East, South, West"—an informative booklet that will stimulate the thinking of every executive. Dept. PR-11, Railway Express Agency, 230 Park Avenue, New York 17, N. Y., or ask for it at any local office.

AIR EXPRESS

Gets there *FIRST*

Phone RAILWAY EXPRESS AGENCY, AIR EXPRESS DIVISION
Representing the AIRLINES of the United States

APPROVE CAN MANUFACTURE FROM SECONDARY METAL

The War Production Board has approved the manufacture of cans from secondary metal—blackplate rejects andterneplate waste—for the packing of 27 product classifications.

This action was taken by the inclusion of Schedule IV, listing these 27 products, in Conservation Order M-81.

WPB at the same time announced that it had placed a ceiling on the pack of grapefruit and orange juices to 100 per cent of what citrus growers packed during the 1943-44 season. Heretofore WPB had permitted an unlimited pack of citrus juices. WPB reported that the citrus juice pack this year is the largest on record.

Because of increasing military and lend-lease requirements for evaporated milk, WPB has ordered that the packing quota on 14½-ounce cans of evaporated milk be increased by five per cent.

Schedule IV covers packing quotas for the remainder of 1944 and for 1945 on the following categories of products:

Auto tire repair kits, oil filters and condensers; baking powder; bouillon cubes; caulking compound; dry glues and cement; cereals, flour, cookies, biscuits and crackers for export only; dehydrated vegetables excluding soups; dry dyes; exterminators; electrodes; disinfectants and deodorizers on a limited basis; grain fumigants and seed disinfectants; household oils; inks; ink eradicator; lap cement; lighter fluid; lye, drain cleaner, caustic soda and toilet bowl cleaner; plastic wood; rubber cement including solvent or latex; shock absorber fluid; soap paste, including paste cleaners; spices, salt seasoning and dry mustard; tea; putty; liquid and plastic roof cements and fibrous and non-fibrous roof coatings; and surgical dressings and hospital supplies, including bandages, adhesive tape, mustard plaster and sputum cups.

1 1 1

BLACK METAL MADE AVAILABLE TO CROWN MANUFACTURERS

Because additional quantities of black metal have been made available to crown manufacturers, the use of salvaged tin cans for the manufacture of bottle caps or crowns will no longer be permitted, the War Production Board announces. Thus, more used tin cans will be sent to detinning plants and the recovered tin channeled to the most vital uses, WPB explained.

In Direction 1 to M-325, issued today, WPB revoked all authorizations permitting the delivery or acceptance of tinned scrap for the manufacture of bottle caps or crowns.

However, material that is now in the possession of the user or manufacturer may be used for the production of bottle caps or crowns until January 1, 1945.

This direction does not prevent any person from assisting in the collection of used tin cans for salvage, but none of the cans so collected may be used in the manufacture of bottle caps or crowns, WPB explained.

*You Bet, **FILING is IMPORTANT!***

Don't kick your file jobs around. Today, production is moving so fast to waste time with jig files or trying to file by hand.

The sturdy DoALL Band Filer will soon pay for itself by taking care of all your filing in a quarter of the time required by reciprocal machines.

DoALL BAND FILER

Files anything up to 6" thick to close tolerances. Equipped with an 18" square tilting work table and other modern features operators like. Speed is variable, 50 to 250 f.p.m. Occupies only 27 x 34" floor space.

Write for the circular
BAND FILING TO PRECISION TOLERANCES



12 AVAILABLE FILE BANDS

make the DoAll Filer versatile enough for any size plant for filing all kinds of non-ferrous metals, mild and tool steel, aluminum, brass, copper, zinc, cast iron, etc.



DoALL

INDUSTRY'S NEW SET OF TOOLS

CONTINENTAL MACHINES, INC.

1357 S. Washington Ave.

Minneapolis 4, Minn.

Sales & Service Offices: Baltimore, Birmingham, Boston, Chicago, Cincinnati, Cleveland, Denver, Detroit, Erie, Grand Rapids, Hartford, Houston, Indianapolis, Los Angeles, Milwaukee, Minneapolis, New York, Orlando, Philadelphia, Pittsburgh, Providence, Rochester, Rockford, St. Louis, San Francisco, Seattle, Toledo, Tulsa.

IT'S
Simple Arithmetic



CLEAN THREADS

+



UNIFORM HEADS

= ECONOMY

- IN PRODUCTION
- IN ASSEMBLY

When you purchase metal fastenings with clean threads and uniform heads, you speed production. This usually means economy of assembly as well as long life for your products. You get BOTH when you specify screws, nuts and bolts made by **General Screw Manufacturing Company**.

Our products are noted for:

- Clean Threads
- Uniform Heads
- Accurate Shanks
- Freedom from scale and burrs.

Our inspection is careful and continuous, from raw materials to finished product. Service is prompt, management experienced. Thousands of satisfied purchasing agents rely on General Screw for bolts, nuts and screws, standard and special. You can depend on us for long life metal fastenings to speed your production and assembly job.

SEND YOUR ORDER TO

GENERAL SCREW
Manufacturing Company

1238 W. Monroe Street, Chicago 7, Ill., U. S. A.

ESTABLISH PRICES FOR GOVERNMENT OWNED ALUMINUM SCRAP

W. L. Clayton, Surplus War Property Administrator, has announced a new regulation, establishing prices below which various grades of Government-owned aluminum scrap may not be sold in this country.

It has been necessary to fix minimum prices now in order to prevent demoralization of the aluminum scrap market, Mr. Clayton said. Unless restricted, this situation could lead to distress scrap falling into the hands of speculators at inadequate returns to the Government, he added.

Any government-owned aluminum scrap that cannot be sold at the minimum prices is to be withheld from the market pending further instructions. It will be turned over to the Metals Reserve Company, of the Reconstruction Finance Corporation, for storage, in accordance with provisions for storage and handling incorporated in the new regulation.

In locations where storage space is not available, sales may continue until October 15, 1944, under pre-existing regulations but no sales will be made from storage until further instructions are issued.

The schedule of minimum prices on aluminum scrap follows:

- (a) All segregated solids—6 cents per pound.
- (b) All mixed solids—5 cents per pound.
- (c) Any scrap solids mixed with foreign materials—4 cents per pound.
- (d) Obsolete aircraft to be scrapped; sub-assemblies completed or partially completed to be scrapped—2½ cents per pound.
- (e) Wrecked aircraft—1¼ cents per pound.

The minimum prices do not apply to lots of 10,000 pounds or less, to borings or turnings, or to aluminum scrap in terminated contracts where the claim against the Government is less than \$10,000. These exempted items will continue to be disposed of in accordance with pre-existing regulations.

Recent price weakness has followed the accumulation of large quantities of aluminum scrap from current production and from War Department and Navy Department contracts that have been terminated, Mr. Clayton said.

1 1 1

SILICA GEL PLACED UNDER CONTROL OF ORDER M-300

Because of heavily increased military demands for the desiccant grade of silica gel for the moisture-proof packaging of war material sent to combat areas, the War Production Board placed the chemical under the control of Order M-300, the general chemicals order.

Moisture-proofing of containers to prevent mildew and corrosion of the contents is a war-developed use of silica gel, WPB officials explained. Widespread military demands for such application have caused the industry to expand from

(Continued on page 292)

HARTLEY TUNGSTEN-CARBIDE Special Shaped DIES

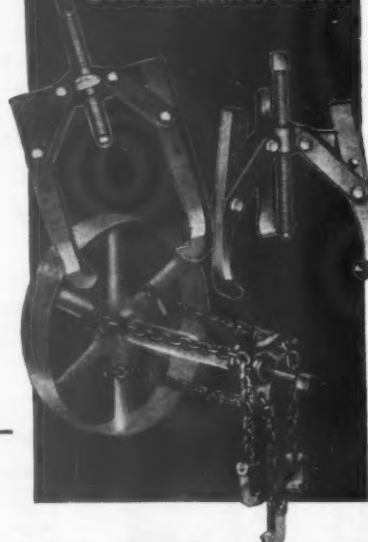
No need to worry about facilities for fast and reliable production of special-shaped dies — that's the specialty of the Hartley Wire Die Company.

Skilled workmen, combined with extreme manufacturing care and most critical inspection, assure you dies of the high quality you require, and the prompt service you desire.

"From blueprint to finished product" — that's Hartley service. Just send us the prints of the dies you require; no problem is too tough, no job too large or small. Every assistance we can give is yours.

HARTLEY WIRE DIE COMPANY
THOMASTON, CONN.

ARMSTRONG-BRAY Gear and Wheel Pullers



**PROMPT SHIPMENT FROM STOCK
— ESSENTIAL TOOLS TODAY**

because they save hours of time, prevent costly breakage and long shut downs. **STEELGRIP** Standard Rigid Arm Gear and Wheel Pullers are of improved design. Will not slip from work. Arms are forged and heat-treated. 2-arm, 3-arm and special models. 12 types and sizes. **CHAINGRIP** Universal Pullers pull wheels, solid gears, pinions etc., even at considerable distance from end of shaft. Proof-tested chains have both chain hooks and special pulley hooks. 3-ton and 12-ton capacities.

Write for Catalog Sheets.

ARMSTRONG-BRAY & CO.

"The Belt Lacing People"

5378 Northwest Highway, Chicago 30, U. S. A.



the Improvement goes on...

ENDLESS



FORMICA

● Since 1913, in the Formica Laboratories, a considerable force of competent research men has been busy every day seeking new ways to improve Formica and its usefulness to industry.

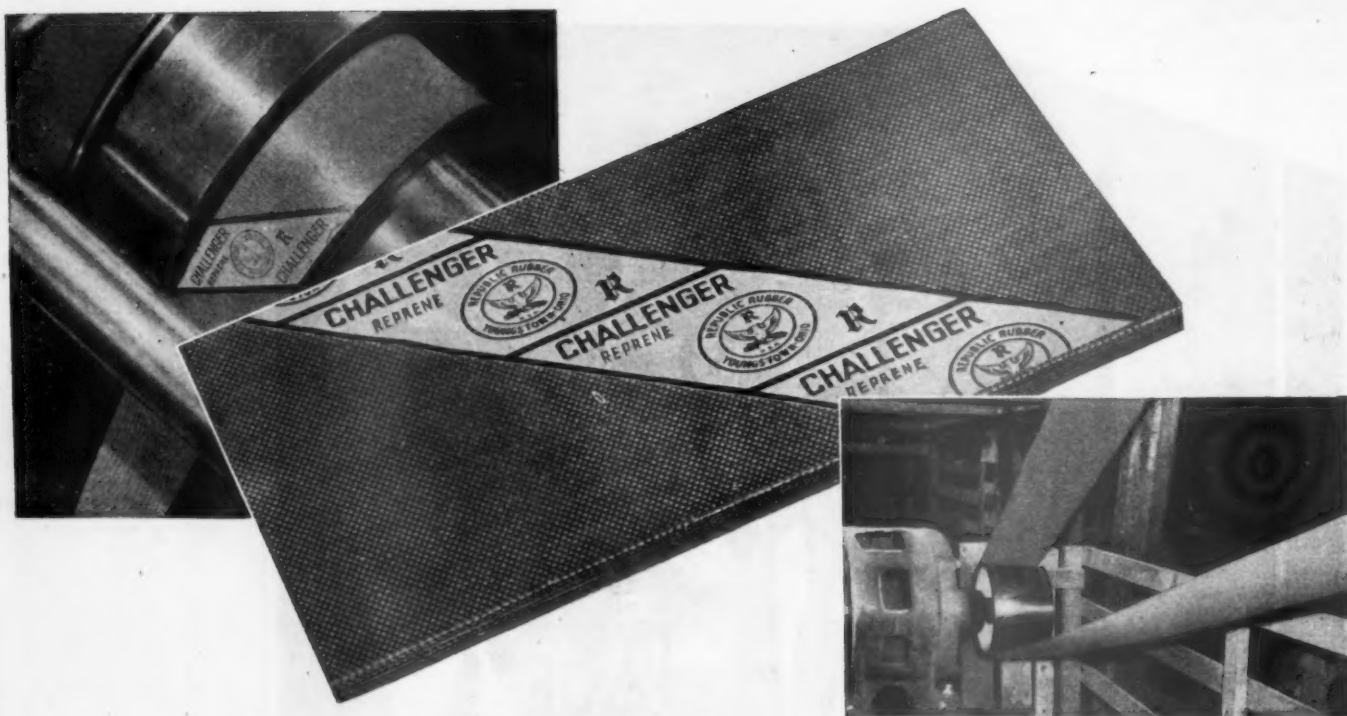
They have worked out a long line of improvements which have been additions to the art. During these war years they have been exceptionally busy, and productive.

Among the important recent developments have been glass cloth and glass mat grades for high mechanical strength, and improved insulation of high frequency currents; Pregwood for airplane propeller blades and other mechanical uses; alkali resistant grades for chemical processes, better laminated translucent sheet, sturdier and more decorative Formica finishes.

There are others which will soon be unveiled. All the knowledge of this laboratory is at your disposal when you have a problem in the use of laminated plastics to solve. Ask for it

"The Formica Story" is a moving picture in color showing the qualities of Formica, how it is made, how it is used. Available for meetings of business groups

THE FORMICA INSULATION COMPANY, 4666 Spring Grove Avenue, Cincinnati 32, Ohio



Outstanding for Years -
Now Improved **with special Synthetics**

CHALLENGER was recognized in pre-war years as a quality belt for heavy industrial drives and for general service. Built from heavy, pre-stretched, hard-woven duck, each ply continuous without seams or splices, Challenger could always withstand severe shocks and stresses of difficult transmission drives.

Now with the tremendous added advantages of special heat-and-oil-resisting synthetic rubber, Challenger Reprene Belting will provide industry with even greater service life. It is a belt with maximum flexing life for drives operating at high speed and over small pulleys. It is recommended for transmission conditions where oil and grease are present, for paper and chemical industries, mining and stone crushing, brick plants, textile mills, lumber and planing plants, oil crushing and refining plants, and many others. Consult your Republic Distributor on uses for Challenger Reprene Transmission Belts.



REPUBLIC RUBBER

DIVISION

LEE RUBBER & TIRE CORPORATION

YOUNGSTOWN 1, OHIO

REPUBLIC INDUSTRIAL PRODUCTS
 YOUNGSTOWN, O.



LEE DELUXE TIRES AND TUBES
 CONSHOHOCKEN, PA.

America's
MOST USEFUL STEEL



A low-alloy steel with an extremely wide range of applications, produced in *high-tensile* grades and in *carburizing* and *constructional* grades. Vastly stronger and tougher than carbon steels—more economical and more easily fabricated than high-alloy steels. Tomorrow's great products, like today's great fighting equipment, will be made of N-A-X alloy steel.

GREAT LAKES STEEL
Corporation

DETROIT 18, MICHIGAN • SALES OFFICES IN PRINCIPAL CITIES
 Division of NATIONAL STEEL CORPORATION • Executive Offices, Pittsburgh, Pa.

A
 GREAT STEEL
 FROM
 GREAT LAKES

N-A-X ALLOY STEEL IS USED IN: amphibian tanks . . . tanks and tank destroyers . . . jeeps, trucks and personnel cars . . . tractors, tank retrievers and other heavy equipment . . . fighter and bomber aircraft of all types . . . Navy ships, from PTs to battleships . . . gun mounts and carriages . . . landing craft . . . miscellaneous weapons and equipment.

CM HERC=ALLOY SLING CHAINS

boast service records as long as your arm

Ask any plant executive or safety engineer who has used CM Herc-Alloy Sling Chains...their experiences will prove the reasons why that once they are put on a job they "stick." In fact, CM Herc-Alloy Sling Chains shipped years ago are still in service.

The patented Inswell electric welded links and all fittings are of Herc-Alloy formula steel with a tensile strength of 125,000 lbs. per square inch...a safety factor of 150% compared to ordinary sling chain. Herc-Alloy seldom, if ever, requires annealing.

There is a size and type to handle your job and prove in service that here is sling chain value *plus* by any method of figuring.

Get all the details now from your mill supply distributor or write us.

COLUMBUS=McKINNON

CHAIN CORPORATION

(Affiliated with Chisholm-Moore Hoist Corporation)

GENERAL OFFICES AND FACTORIES: 136 Fremont Ave., TONAWANDA, N. Y.

SALES OFFICES: New York, Chicago and Cleveland

(Continued from page 288)

its prewar production average of 500,000 pounds a year to its present annual output of 60,000,000 pounds.

No allocation controls are placed on the catalyst grade of silica gel or on the desiccant grades that are finer than 80 mesh. The catalyst grade of silica gel is used in the petroleum industry, while the fine desiccant grades are used in industrial gas masks and for cable splicing.

Desiccant grade silica gel was formerly under allocation control of Order M-219, issued September 3, 1942. This order was revoked on February 20, 1943, because at that time the supply was ample to meet all demands.

Although military requirements consume the bulk of the desiccant grade silica gel, limited supplies will be made available for refrigeration and air conditioning to meet essential civilian needs, WPB said.

1 1 1

METALS MAY NOW BE USED IN MAKING SIGNS

Iron and steel in frozen, idle or excess inventories, and aluminum and magnesium, may now be used in the manufacture of metal signs, the War Production Board announces. Previously, production of metal signs was prohibited.

This relaxation, WPB officials explained, is in line with WPB policy to remove all controls or restrictions as they become obsolete or unnecessary.

The metal signs order, L-29, was originally issued to curtail the use of metals in the manufacture of signs, to make metal inventories in the stocks of sign manufacturers available for direct war use, and to bring about the conversion of sign manufacturing facilities and labor to war production.

As a result of the order, the larger sign manufacturers converted their facilities to war production and have been actively engaged in manufacturing such products as tent shields, smoke pipe, bomb fuse parts, detonator caps, industrial sirens, signaling devices, spark arresters and reflectors. However, a vast majority of the 7,500 sign manufacturers were unsuccessful in securing war work and have continued their operations on a reduced scale by resorting to substitute materials, such as lumber, which are now more critical than metals, WPB said.

While the order stopped the consumption of sheet metal formerly absorbed by sign manufacturers, it failed to recover large quantities of metals from inventories because forms and shapes in sign manufacturers' inventories were generally found to be unusable for war production. For the most part these inventories, still held by sign manufacturers, have been idle and are subject to deterioration.

The amendment to L-29 also provides that sign manufacturers may apply for permission under the "spot authorization" plan established by Priorities Regulation No. 25 to use other metals besides aluminum or magnesium or to use iron and steel not now permitted for sign manufacture.

(Continued on page 294)





THEIR SMALL
MOTORS
ARE TOPS!

THEY'RE RIGHT SMART
ABOUT MOLDED
PLASTICS, TOO!

IT IS EASY to see that both these gentlemen are satisfied customers of General Industries. One acclaims our "know-how" in molded plastic parts—the other our velvety *Smooth Power* motors. Yes, we do both jobs under one roof and one management.

GENTLEMEN, YOU'RE BOTH RIGHT!

 The plastic parts buyer has profited from the ingenious skill of our mold makers, who enable us to turn out tricky jobs economically and on time. Quite likely he has seen our up-to-date equipment for compression, transfer and injection molding of large or small parts in any quantities. Our engineers have made sensible and workable suggestions, by reading between his blueprint lines. He is typical of leading manufacturers in many fields who rely upon General Industries plastics division.

 The speaker on *Smooth Power* motors might be a radio-phonograph builder who uses our turntables, record changers and recorders. Or he might be a designer who depends upon these fine low-torque drives to power electric, electronic or mechanical devices. In any case, he's well acquainted with the facilities of our *Smooth Power* motor division.

We want to emphasize the point that we're a thoroughly able producer of both these products. If your plans call for either or both, we'd like to work with you. In your request for details, please address the respective division . . . *small motors or plastics.*

THE

**GENERAL
INDUSTRIES
COMPANY**

ELYRIA, OHIO



(Continued from page 292)

REVOKE TOOL LIMITATION ORDERS

Five orders and two limitation order schedules under jurisdiction of the Tools Division of the War Production Board have been revoked.

In revoking the regulations, the Tools Division explained that backlogs of unfilled orders for the items involved had been reduced sufficiently so that no difficulty is anticipated in meeting future requirements. Delivery of tools and related products involved still are subject to Priorities Regulation 1, which provides for the filling of rated orders ahead of unrated ones. Delivery also is subject to other applicable WPB regulations.

The orders revoked today are E-5-a (gages and precision measuring hand tools); E-7 (metal cutting handsaw blades and hacksaw blades); E-9 (precision measuring instruments and testing machines); E-11 (foundry equipment and electric metal melting furnaces); M-211 (heat treating equipment).

The revoked schedules are Schedules 5 and 6 to Limitation Order L-216, controlling the manufacture of files and vises respectively.

1 1 1

REVOKE PREFERENCE ORDERS ON METAL SCRAP

In view of the adequate supply of metal scrap, the War Production Board revoked Order P-136, assigning preference ratings to processors of metal scrap for maintenance, repair and operating supplies.

When P-136 was originally issued in November, 1942, there was a critical need for all types of metal scrap, WPB said. To remove bottlenecks in the flow of metal scrap, preference ratings for maintenance, repair and operating (MRO) materials were assigned to scrap processors under P-136.

Availability of MRO materials is no longer a limiting factor in the flow of scrap. With the revocation of P-136, scrap dealers may use the ratings assigned by CMP Regulation 5 to obtain maintenance materials, WPB said.

Deliveries already rated under P-136 will be completed, but no additional application of these ratings may be made, WPB explained.

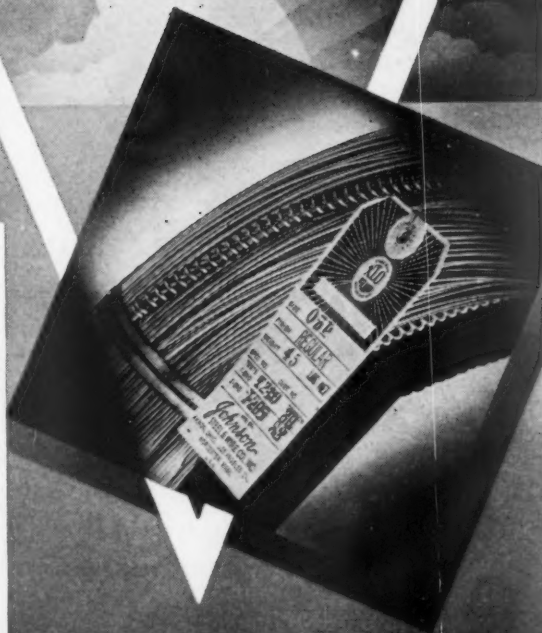
1 1 1

REVOKE LIMITATION ORDER M-191 ON LITHIUM COMPOUNDS

In view of reduced military demands for lithium compounds, the War Production Board has revoked Order M-191, governing allocation of the chemical.

Industrial uses for lithium compounds follow: Dehumidification and air conditioning; storage batteries; glass and ceramic products; special low temperature lubricants; welding fluxes for aluminum and alloys; scavengers, deoxidants and alloy constituents for metallurgical operations; medicinal and beverage extracts.

With the dawn of victory — Johnson production, greatly enhanced through the war is ready for larger service through general distribution. Johnson research is prepared to help you with your high carbon steel wire problems.



JOHNSON STEEL & WIRE CO., INC.
WORCESTER 1, MASSACHUSETTS.

NEW YORK ATLANTA AKRON CHICAGO LOS ANGELES

REG. U.S. PAT. OFF.
**HY-PRO
TAPS**

For High Production

HY-PRO precision taps produce consistently more threaded pieces to lower your tapping costs. Their extra hardness and durability result in longer life, greater accuracy, more wear between sharpenings.

Send in your Tapping Problems. Our Engineering Staff will give them careful study and recommend the best solution.

Send for catalog on company letterhead



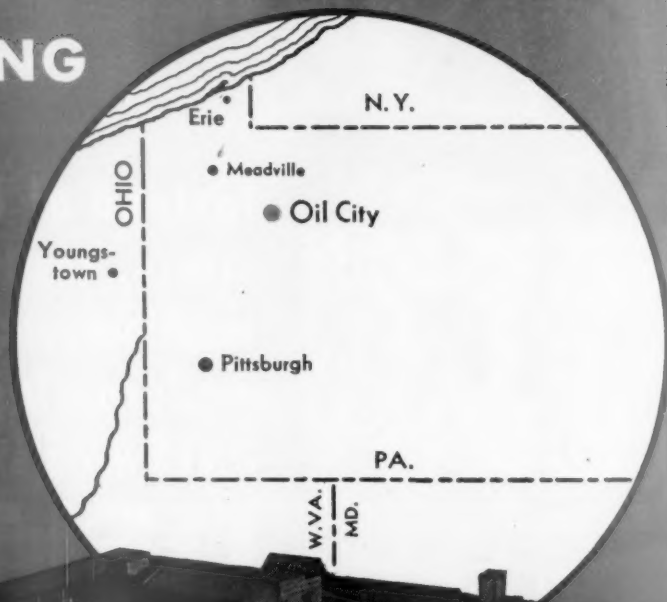
HY-PRO TOOL CO.
New Bedford, Mass. U.S.A. BUY MORE BONDS

An invitation
See for yourself why more and more buyers
Buy Talon's TUBING

To every buyer who seeks a dependable source for electric welded steel tubing, Talon extends an invitation to you *personally* to visit their Steel Tube Division.

When you observe the different departments in action, you will understand why we never hesitate to promise same-day response to inquiries—and on-time deliveries.

Many buyers of Talon's Tubing have visited our plant at Oil City, Penna., and have commented on the extensive facilities. They have been impressed, too, with the care and workmanship exercised in the production of Talon's Tubing—and the "sales-minded attitude" of their operating men.



On your next trip . . .

To Pennsylvania, New York, or Ohio territories, stop over in Oil City. Not only will you have an opportunity to see the fascinating manufacturing process, but you may discover some profitable ideas for you and your company.

PRESSURE AND
MECHANICAL

TALON . . . INC.

SIZES FROM $\frac{5}{8}$ " O.D. TO 4" O.D.
UP TO 40' IN LENGTH

STEEL TUBE DIVISION

OIL CITY, PENNA.



Instead of buying
scarce, costly **NEW**
machines... consider
modernizing **OLD**
ONES with standard
DELTA
components — at a
fraction of the cost

► Today, when the conservation of machinery is so important, shop engineers are salvaging those parts that are still in good condition and replacing the worn units with standard Delta components.

The top illustration shows an old radial drill arm modernized with a 17" Delta drill-press head on a special mounting plate. The other illustration demonstrates how old, wornout heads were replaced by Delta 14" drill presses, thus saving the base and table which were still in good condition.

Perhaps you can apply this modern, economical method of modernizing machines in your plant that are approaching obsolescence. Make them dependable production units through the use of inexpensive standard Delta components. Also investigate the use of these low-cost components for building special-purpose machines that are quickly available, dependable, economical, and adaptable when conditions change.

Delta's 76-page Blue Book Gives You 140 Examples

— actual case histories in which special-purpose machines for war production were built around standard Delta components — low in cost, compact, readily available, quickly adaptable when requirements change. The same ingenious combinations can be used in reconverting for peace.

Write for your free copy.

MAIL THIS COUPON — TODAY —

MA-12

THE DELTA MANUFACTURING CO.
713M E. Vienna Ave., Milwaukee 1, Wisconsin

Please send me my free copy of your 76-page-
Blue Book, and catalog of low-cost Delta Tools.

Name.....Position.....

Company.....

Address.....

City.....(.....) State.....



CONDUIT, TUBING AND RACEWAY RESTRICTIONS REMOVED

Restrictions on the installation of electrical conduit, electrical metallic tubing and raceways have been removed from Order L-225, which was amended recently, the War Production Board announces.

Formerly installations were permitted only for specified end uses. Restrictions were imposed as a temporary measure to save critical materials. Their removal is now possible because the supply of the type of steel used in the manufacture of conduit, tubing and raceways has eased, WPB said.

The amount of metal (by weight) that may be used in the manufacture of this equipment is still limited by L-255 on the basis of the amount used in 1941. The order also retains provisions restricting sales by manufacturers and distributors to those with preference ratings of AA-5 or better. Manufacturers are still required to make monthly reports to WPB on sales and shipments.

1 1 1

WPB AMENDS UTILITIES ORDERS TO SIMPLIFY RECORD KEEPING

The War Production Board has amended existing orders affecting utilities operations to simplify accounting and record-keeping under the Controlled Materials Plan. Changes in Direction 2 to Order U-1, Direction 1 to Order U-3 and Direction 1 to Order U-4 remove requirements for detailed accounting for controlled materials used on large construction projects. These directions originally made such accounting unnecessary for small projects.

1 1 1

REVOKE CONTROLS ON MAGNESIUM FOR CIVILIAN PRODUCTS

All Government controls on the use of magnesium for civilian products have been removed, the War Production Board declared in announcing the revocation of Preference Order M-2-b.

Simultaneously, WPB issued Order M-2-c, which provides that all restrictions on the use of magnesium contained in other WPB orders no longer apply. However, restrictions in other orders as to the quantity of an article that may be made or as to its size or type remain applicable even if the article is made wholly or partly of magnesium.

The new Order M-2-c states that persons wishing to obtain aluminum or aluminum products may place rated or unrated purchase orders on their supplier without securing approval of WPB or the Aircraft Scheduling Unit of the Aircraft Resources Control Office. Orders so placed are subject to the priorities regulation of WPB, particularly Priorities Regulation 1.

The order calls for monthly reports to WPB by certain industries, such as those engaged in the production of virgin magnesium and of some magnesium products, and in the smelting of magnesium scrap.

(Continued on page 300)

DESIGN + STATISTICS = QUALITY

Statistical Methods in Quality Control

Most of our advertisements have mentioned Quality Control of our products, using statistical methods—several have featured our use of this relatively new and powerful control technique.

Today we present our newest data book—"Statistical Methods in Quality Control." This book is the outgrowth of our own experience with statistical methods.

The 80 pages of this book are exact reproductions of data sheets selected from our own data book which is used by our own inspection department. It contains charts, graphs, sample calculations, formulas and includes actual analyses of test and production data by frequency distri-

butions, correlation and control charts.

The data contained in this new book was written to be understood and used by our own personnel and is particularly suited for organizations interested in initiating or advancing their own quality control programs.

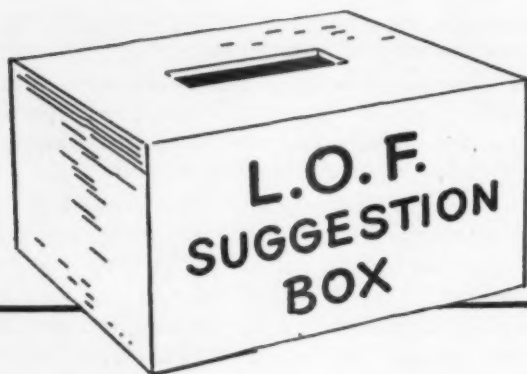
A limited number of copies have been printed and are available only to chief inspectors and engineers responsible for quality control—who request it on their company letterhead.

The original Hunter data book covering the design of mechanical springs is still available to engineers and designers. Over 5000 copies of this popular data book have already been issued.

No charge, of course, for either book.



HUNTER PRESSED STEEL COMPANY, LANSDALE, PENNA.



How to maintain high standards of cleanliness ... with *Glass*



ON THE PRODUCTION LINE

Glass surfaces are used widely where cleanliness is important to production or inspection of precision equipment. They're easy to keep immaculately clean. And they offer a hard, smooth and extremely flat working surface.



IN THE CAFETERIA

Clean, sparkling surfaces of glass are an incentive to personnel to keep a cafeteria as clean as possible. Because glass absorbs no liquids or odors—cleans quickly, easily and thoroughly—it is ideal for restaurant uses.



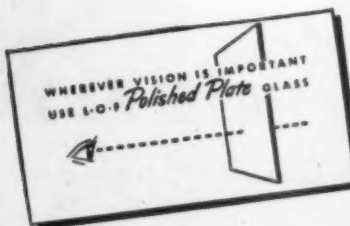
IN THE LABORATORY

Laboratories often must be kept as spotlessly clean as a hospital operating room—to prevent contamination of chemicals or foods. Glass surfaces make maintenance of sanitary conditions easier—more certain.

GLASS can serve industry far beyond the employment of its permanent transparency. It has hardness, smoothness and nonporosity that are valuable characteristics for equipment, buildings and finished products.

For resistance to weather, to acids and other elements generally considered destructive, glass is in a class by itself. And, tempered, it has surprising resistance to physical and thermal shock.

Today, glass has amazing versatility—in shape, color and finish. Discussion with us may reveal ways glass can help you speed production, cut costs or improve the performance and salability of your product. When may we talk with you? Libbey-Owens-Ford Glass Company, 59114 Nicholas Building, Toledo 3, Ohio.

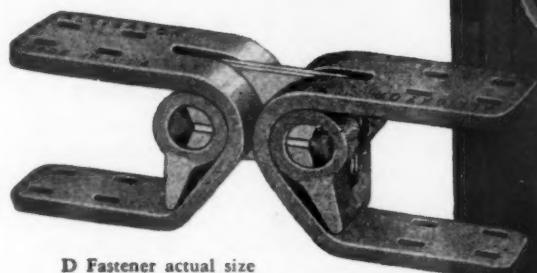


LIBBEY • OWENS • FORD

a Great Name in **GLASS**

ALLIGATOR V-BELT FASTENERS

**—widen field
of application
for V-Belts**



D Fastener actual size



Close coupled drives to shafting of the type shown below are now made possible through the use of Alligator V-belt fasteners and fabric core V-belting. These fasteners are, however, not for application to endless cord V-belts.

WITH the rapidly increasing use of V-belts and the constantly widening field for applications of these belts there has come an insistent demand for a fastened V-belt.

To meet this demand, belting manufacturers have put on the market leather V-belts and specially constructed fabric V-belts. The Flexible Steel Lacing Company, as its part of the program, developed the Alligator V-belt fastener.

With the Alligator V-belt fastener and the specially constructed V-belt, it is convenient and economical to install and maintain matched multiple lengths of V-belts on drives without the necessity of dismantling expensive installations. It is also possible to make up a wide variety of multiple V-belt drives from roll belting. Only one fastener is needed on each belt but if some odd lengths of belting are on hand, they can be used by joining them with several fasteners.

During the nine years these fasteners have been on the market they have established a remarkably fine performance record on a wide variety of drives. You can therefore use these fasteners on your V-belt-drives with assurance as to their successful operation.

The fasteners are available for B, C and D sizes of belt for industrial use and 1-in. and 2-in. sizes for railroad use. Complete details are covered in the bulletin described below and if you are not familiar with this latest development in belt fastening practices we suggest you write for a copy.

COMPLETE DETAILS are covered in Bulletin V-205 which covers both industrial and railway applications of Alligator V-belt Fasteners. Shows where and how they are used with sizes, list prices, tools and other details.

A copy will be mailed at your request



Order from Your Supply House

FLEXIBLE STEEL LACING CO.
4697 Lexington St., Chicago 44, Illinois

Sole manufacturers of Alligator Steel Belt Lacing for flat transmission belts • Flexco HD Belt Fasteners for conveyor belts • Alligator V-belt Fasteners for open end V-belting.



I'm Eppie, the Demic, a Jitterbug germ
Thirsty people I try to entice —
Common cups make it easy
To make people sneezy
But a paper cup's never used twice!

AJAX ▶
Paper Cups



◀ **AERO**
Paper Cups

COLUMBIAN ▶
Paper Cups



◀ **PEERLESS**
Paper Cups

USE PAPER CUPS

LOGAN DRINKING CUP COMPANY
68 Prescott Street, Worcester 5, Mass.

PACIFIC COAST ENVELOPE COMPANY
416 Second Street, San Francisco 7, Calif.

C-14



Divisions of
**UNITED STATES
ENVELOPE CO.**

13 Plants from Coast to Coast

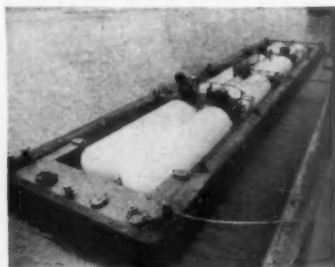
(Continued from page 296)

In revoking the controlling magnesium order, the Aluminum and Magnesium Division said that restrictions on the use of the metal are no longer necessary to protect military programs, particularly after the recent reductions in the production schedules of the aircraft industry, the principal consumer.

1 1 1

HUGE CHLORINE SHIPMENT.

The Pittsburgh Plate Glass Company has opened a new field for the transportation of chlorine, which holds great promise for postwar development, with the delivery to Charleston, West Va., of 380 tons of the chemical in a red, white and blue barge. The chlorine is carried in four fusion-welded steel tanks with a minimum thickness of 1/4". They were built to withstand a pressure of 300 lbs. per square inch. The tanks are 55' 4 1/2" long and 7' 8 1/2" in diameter. The barge is 135 feet long.



World's largest shipment of chlorine
380 Tons. The barge is 135 ft. long,
26 ft. wide.

The use of chlorine has jumped by leaps and bounds during the war and its sale is under WPB allocation. The industry is predicting that in the postwar period it will become the Queen of the chemicals because of the part it will play in making plastics, synthetic rubbers, dry cleaning fluids, high test gasoline, vitamins, sulfa drugs, delicate dyes, medicines, and many other things such as waterproofing and fireproofing materials. Before the war chlorine was used principally to bleach paper and textile, purify water, and for making other chemicals. Its output has jumped from 514,000 tons in 1939 to 1,211,000 tons last year.

1 1 1

MINNESOTA MINING & MFG. CO. ACQUIRES MID-STATES GUMMED PAPER CO.

Acquisition of the Mid-States Gummed Paper Co. of Chicago, one of the larger concerns in the field of gummed paper and cloth tape and gummed label manufacture, is announced by President W. L. McKnight of the Minnesota Mining & Manufacturing Co., St. Paul, Minn. Active management of Mid-States will continue in the hands of Irving McHenry, president and associates. Principal products of the newly acquired concern are paper and cloth sealing tapes, gummed label stock, and a wide variety of cloth and combined paper-and-cloth tapes for use in the corrugated box industry.

FORECAST NEED FOR POSTWAR AIR EXPRESS SERVICE

Air express shipments carried in combined air and rail service in the first seven months of this year gained 12.3 per cent over the similar 1943 period, the Air Express Division of Railway Express Agency reported today. A total of 250,970 shipments were handled for the nation's commercial airlines during the seven-month period, compared with 223,338 shipments the previous year.

Utilization of the air shipping speed afforded by air-rail transportation is expected to be particularly valuable in the light of postwar reconversion, the report pointed out. The need for an expedited shipping service after the war will be considerable, it was forecast.

Air-rail express service is accomplished through coordination of schedules which link more than 375 airport cities in the United States and Canada to the 23,000 non-airline offices of Railway Express Agency. About one-third of all air express traffic moves in air-rail service, it was reported.

1 1 1

ESTABLISH PROCUREMENT POLICY ON SURPLUS WAR PROPERTY

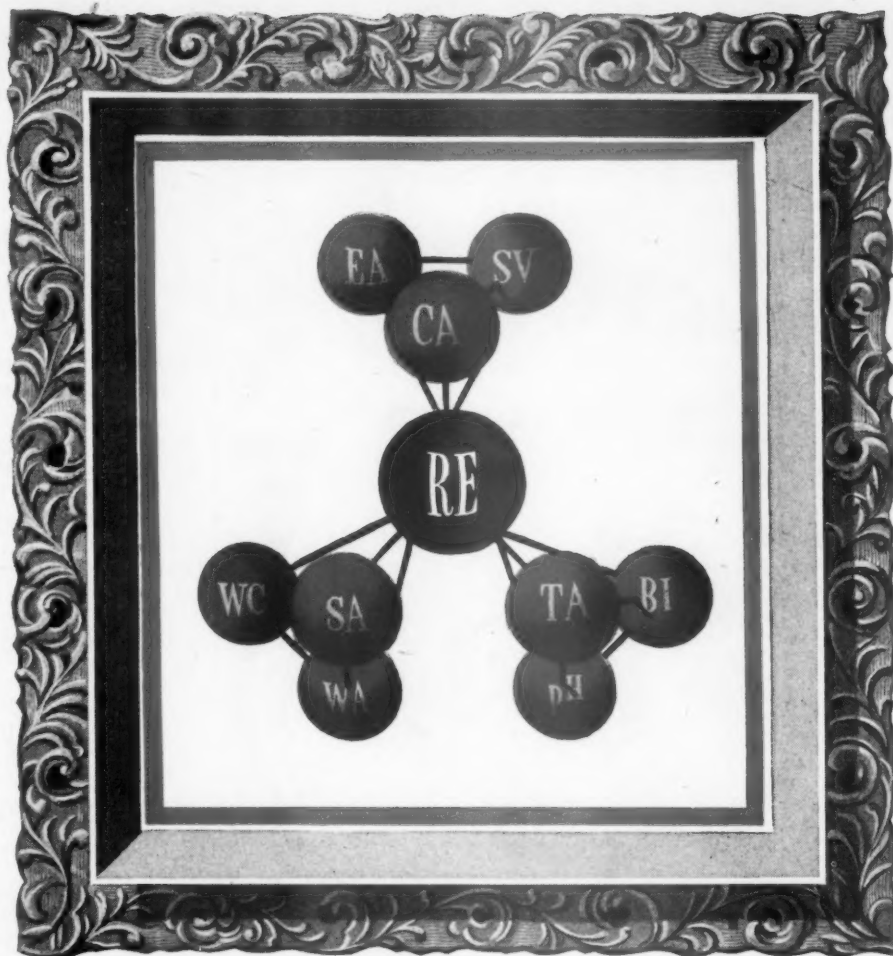
In connection with regulations promulgated by the Surplus War Property Administrator and legislation now pending in Congress which provides that States, Counties and Municipalities will participate in the distribution of surplus war goods, Purchasing Officer Roland M. Brennan advises that the Board of Commissioners of the District of Columbia has approved the following policy to be followed in the procurement of such materials:

"(1) *D. C. Interests*—The District of Columbia is interested in the procurement only of such war goods as are adaptable for our use, provided condition is new or good, price is advantageous and facility of physical inspection exists, if inspection is required. Packaged goods of a manufacture well known to the using department and the Purchasing Division are safe to buy without inspection so long as deterioration or corrosion has not caused damage. In any event, we should be assured of adequate warranty by the disposing agency before purchasing. A certificate of inspection by an agent of the requisitioning department and-or a certificate of inspection by an employee of the Purchasing Division should appear on each requisition for surplus property. (1946 estimates of the Purchasing Division provide for a new position of Surplus Property Inspector for the Purchasing Division.)

"(2) *D. C. Policy*—Not to purchase any used material, stores or equipment unless condition is good or new, or unless there is an urgent public need which must be met and nothing else is available, commercially or otherwise, at the time.

"(3) *Donations*—Should the Surplus War Property Act, as finally agreed to by Congress, provide for donation of school and medical supplies to States,

(Continued on page 302)



PORTRAIT OF A FLOOR BEING WASHED

Whether you are keeping floors clean, conditioning boilers, washing windows or laundering linens, this is the picture of working factors in the scientifically balanced chemical compound. It is also an airplane being washed. It is a sheet of aluminum being prepared for anodizing. It is a diesel engine or coils being descaled. *It is Turco in action.*

The relative value and balance of all the factors is determined by RE; for Research and Experience are the directing agents. They assign roles, give to each agent the correct emphasis, balance them all (one factor does not insure effectiveness in a compound any more than one drug in a prescription). RE symbolizes two decades Turco laboratories have devoted to solving industry's vital problems in the conditioning, maintaining and cleaning of surfaces. Take advantage of it on everything from washing a locomotive to preparing aluminum for anodizing. Call the Turco Field Service Man, or write to Turco.

- EA** —Emulsifying Action disperses grease and oil as tiny globules, suspends them, and prevents redeposition.
- CA** —Colloidal Activity disperses solids into minute particles easily removed.
- SV** —Saponifying Value is the ability to convert organic fats and oils into soluble soaps.
- TA** —Total Alkalinity (or acidity) is the total amount of either available for cleaning.
- BI** —Buffer Index is the ability to absorb either alkaline or acid soil to prolong solution efficiency.
- PH** —A yardstick for measuring the energy of alkalinity or acidity.
- SA** —Solvent Action is the ability to put soil into solution.
- WA** —Wetting Action lowers surface and interfacial tensions, causing solution penetration to base surface.
- WC** —Water Conditioning removes or controls the elements which cause water hardness.
- RE** —all the elements above are mobilized through Turco's Research and Experience.*

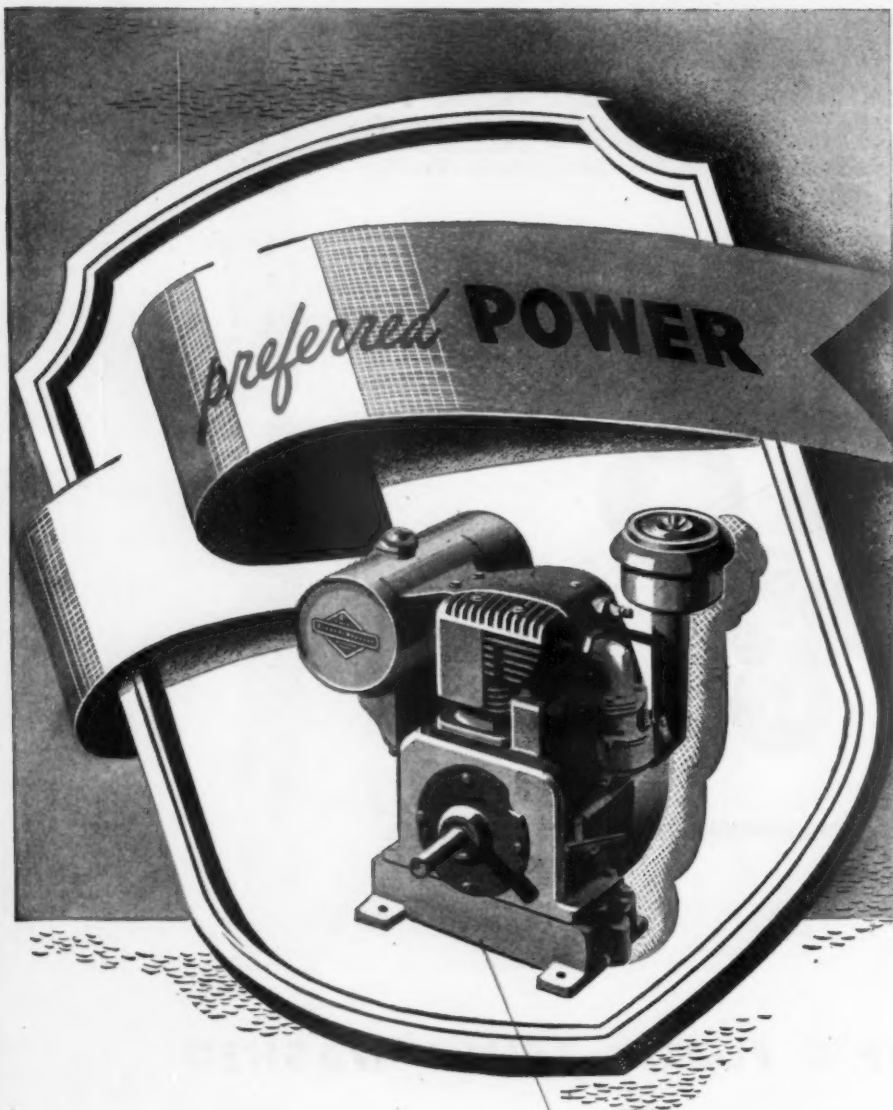
*For a fuller explanation of these vital factors, write for Turco's "The Chemistry of Chemical Compounds," on your letterhead, please.



TURCO

INDUSTRIAL CHEMICAL COMPOUNDS

TURCO PRODUCTS, INC. Main Office and Factory: 6135 S. Central Avenue, Los Angeles 1 • Southern Factory: 1606 Henderson Street, Houston 10, Texas • Chicago Office and Factory: 125 West 46th Street, Chicago 9, Illinois • Offices and Warehouses in All Principal Cities



That's the "rating" for
Briggs & Stratton 4-cycle, air-cooled gasoline engines—
leaders in the field . . . Preferred power—
based on the performance record of over 2,000,000
of these engines with their watch-like precision . . .
the result of twenty-five years of continuous production,
plus constant research and refinement.

Air-Cooled Power



Preferred Power, by manufacturers, by distributors and dealers, by owners and users . . . for hundreds of uses and applications . . . because of *trouble-free performance*, easy starting, and economy of operation. Because of year after year of dependable service with minimum care or attention. We are now ready to help you plan for peacetime production of gasoline powered equipment, tools and appliances. BRIGGS & STRATTON CORP., Milwaukee 1, Wisconsin, U. S. A.

(Continued from page 300)

Counties and Municipalities, the Board of Education and the Health Officer, D. C. will recommend to the Commissioners the action to be taken."

It is assumed that Congress, or regulations promulgated pursuant to any statute enacted by Congress, says Mr. Brennan in a special notice, will provide safeguards to prevent the dumping of huge quantities of surplus war goods on the market to the detriment of the peacetime economy.

1 1 1

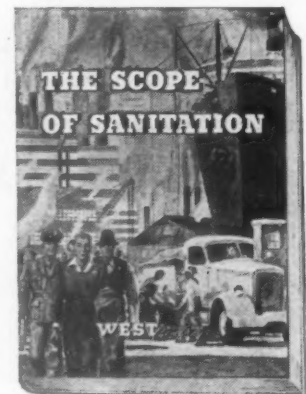
STATE PURCHASING DEPARTMENT TO HANDLE SURPLUS WAR MATERIALS

The Vermont State Purchasing Department, Montpelier, Vt., has been designated by Gov. William H. Will as the state's agency to look after Vermont's interests in the matter of surplus war materials. According to the governor, the state agency will enable the various units of state, county, city and town government in Vermont to be aware of the materials available, and will assist them in purchasing materials they may want.

1 1 1

SCOPE OF SANITATION

"The Scope of Sanitation" is the title of a 68-page illustrated catalog just being released by the West Disinfecting Co.,



Booklet issued by West Disinfecting Co.

Long Island City, N. Y., which contains practical information on the Prevention of Occupational Diseases, Proper Washroom and Plant Sanitation, and Pest Control. Among the subjects covered are Effective Deodorization, Aids in Dermatitis Prevention, Disinfecting Cutting Oils, Protective Creams, General Cleaners, Special Purpose Cleaners, and Women in Industry. Copy may be had for the asking.

1 1 1

MEET ODT REQUIREMENTS

Prospective purchasers of used trucks are urged by the Office of Defense Transportation to make certain before acquiring the vehicles that their proposed operation meets all ODT requirements.

Since October 25, 1943, the agency said, persons who were not designated motor carriers as of that date have been

(Continued on page 304)



AMERICAN *Phillips* SCREWS

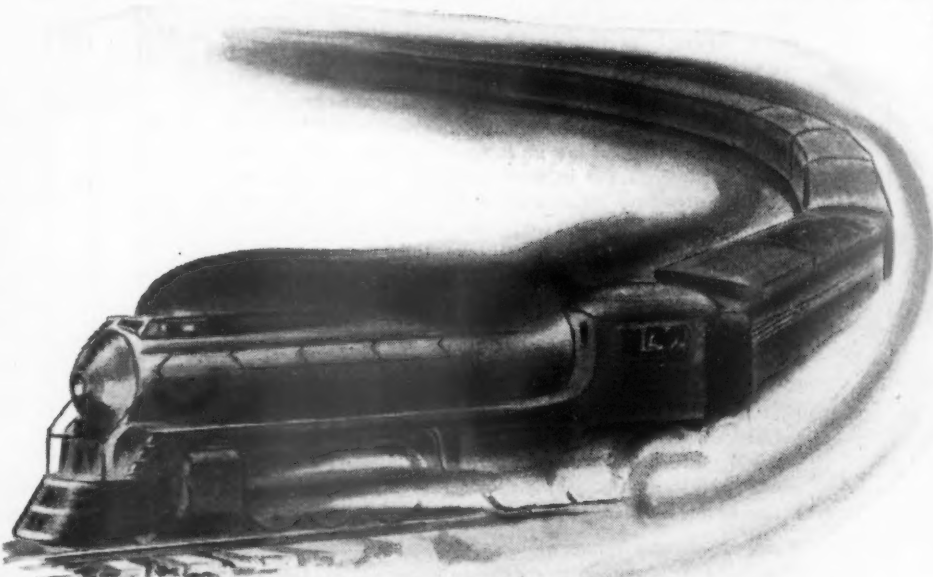
drive with Straight-Line **SPEED**
to Keep Production Rolling at "Full Throttle"

Are you slow-poking along with the same old outdated, slotted screws? . . . Or are you using the modern, streamlined American Phillips Screw Driving method which drives you straight to new speed records in production, without accidents either to workers or their work?

All that *any* worker . . . skilled or unskilled, man or woman . . . has to do is this: Fit the recessed head of an American Phillips Screw onto the 4-winged Phillips bit of a power-driver. Aim this *automatically self-aligned* driving unit at the work, and pull the trigger. *That's all.* Every American Phillips Screw sets up straight, flush, and tight, with its head unburred . . . and with no gouges on surrounding work-surfaces. And that's why so many plants in every industry keep on using American Phillips Screws *right from the first time they tried them* . . . because with this straighter, speedier method, it costs less to do more and better work.



4-WINGED DRIVER CAN'T
TWIST OUT OF ENGINEERED
TAPERED RECESS IN AMERI-
CAN PHILLIPS SCREW HEAD



AMERICAN SCREW COMPANY

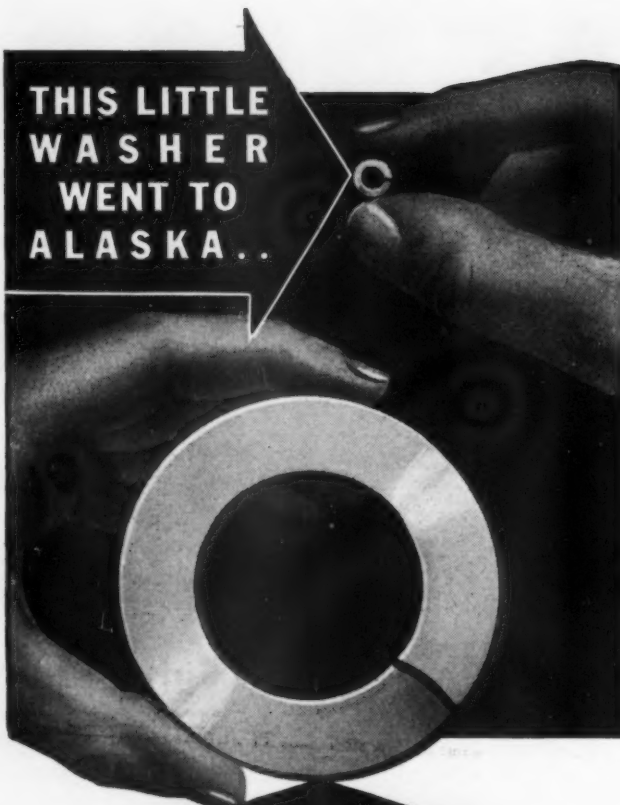
PROVIDENCE 1, RHODE ISLAND

Chicago 11: 589 E. Illinois Street

Detroit 2: 502 Stephenson Building

Put the Screws on the enemy . . . BUY BONDS!

**THIS LITTLE
WASHER
WENT TO
ALASKA...**



**...AND
THIS BIG WASHER
WENT TO ROME**

There's plenty of romance in the life of **DIAMOND G**. From rockets to radar, clocks to cannon, "Controlled Tension" Diamond G Lockwashers and Flat Washers serve throughout the world . . . in war, industry and science.

Designed by skilled engineers . . . fabricated, annealed and torture-tested under rigid supervision and control . . . Diamond G Flat and Spring Lockwashers are tougher, surer, safer in performance. Diamond G was first to introduce "Controlled Tension" in a Spring Washer . . . tension that keeps the washer tight in place in spite of heat, cold and violent action. "Controlled Tension" has definitely minimized slipping, loosening, excessive wear and breakdown. Adequate bearing surface plus positive spring action assures **DOUBLE DUTY** service on every job.

Remember . . . modern high-speed production assures **RAPID DELIVERY** of your orders at all times. If your problem deals only with metal washers . . . or if it concerns design, heat-treating, stamping or fabrication of small metal parts . . . consult Garrett engineers today. Write or phone, for prompt, efficient service.

Write for your copy of the October "Diamond G Digest." It features some of the jobs George K. Garrett can do for you.

GEORGE K. GARRETT CO.

1421 CHESTNUT ST., PHILADELPHIA 2, PA.



DIAMOND G PRODUCTS

(Continued from page 302)

required to show that the operation of the truck is necessary to the war effort or to the maintenance of civilian economy.

Application for a Certificate of War Necessity must be made and the certificate granted before gasoline allotments are made, ODT pointed out. In the case of a new service, application for authority to inaugurate it must be made. These application blanks may be obtained at the applicant's local ODT district office.

Critical shortages of trucks, tires and gasoline, ODT added, make it necessary that only those operations deemed necessary to the war effort and essential civilian economy be approved, and authority to operate a truck should be obtained by a prospective purchaser before he actually buys it.

1 1 1

ISSUE REPORT ON REDUCING HOSPITAL FUEL COSTS

"Reducing Hospital Fuel Costs" is the title of report recently issued by the Research Department of the Hospital Bureau of Standards & Supplies, Inc., 247 Park Ave., New York, N. Y. It deals with the purchase and use of fuels and the operation and care of heating equipment for maximum economy, and contains recommendations for eliminating heat losses. It is said to be the only report of its kind covering the problem of fuel costs in hospitals. The price is \$1.00.

The Hospital Bureau of Standards and Supplies, Inc., is a non-profit cooperative buying organization operated by and for voluntary hospitals.

1 1 1

ANNUAL PLASTICS INDUSTRY CONVENTION NOVEMBER 13-14

The Annual Fall Convention of The Society of the Plastics Industry is to be held this year on November 13 and 14, at the Waldorf Astoria Hotel, in New York City.

Many new plastic materials and manufacturing techniques are being developed to meet war-time demands, and these will be discussed in papers delivered before the meeting by outstanding authorities. Present expanded output of plastics for war use assures an ample peace-time supply and many new civilian applications are in prospect which take in such important fields as textiles, building, packaging, surface coatings and many others.

The speaking programs and other arrangements for the meeting are being handled by a committee of local plastics men under the chairmanship of C. S. Shoemaker of the Dow Chemical Co. Other members of the committee include Chris Groos, Boonton Molding Company; Charles S. Lawrence, American Plastics Corp.; J. D. Herlands, Button Corporation of America; R. D. Werner, R. D. Werner Co., Inc.; Herman B. Lerner, Colluplastic Corp.; Bernard Schiller, R. D. Werner Co. Inc.; Sidney Lewis, Ad-

(Continued on page 306)



When it's **REFRIGERATORS**
instead of range finders

Manufacturers with an eye on post-war markets are "getting the range" through their wartime experience with Western non-ferrous metals... "tailored" for specialized requirements.

We are thoroughly experienced in meeting requirements that call for close tolerances, exacting tempers and finishes, and in producing highest quality metals that are easy to

stamp, form, draw, buff and plate.

The greatly increased capacity of our mills at East Alton, Ill., and New Haven, Conn., will enable us to supply additional customers with high-grade Western metals—in sheet or strip, cut lengths or long coils, drawn or stamped parts. An invitation to discuss your copper and copper base alloy requirements will be appreciated.



Western BRASS MILLS

Division of WESTERN CARTRIDGE COMPANY, East Alton, Ill.

BRASS • BRONZE • PHOSPHOR BRONZE • NICKEL SILVER • COPPER

HARASSED



with
WASHER
troubles?

Take it easy, mister! There's an easy solution to your problem of Washers and Stampings.

Just send your blue-prints or specifications to us. For more than 25 years, we have specialized in producing Special Washers and Small Stampings, from steel, brass, copper and other metals. We have the "know-how" and the equipment to handle your requirements.

If one of our 10,000 sets of tools won't fill the bill, we'll make up special designs for you at reasonable cost.

Also a full line of Standard Washers—U.S.S., S.A.E., Burrs, Etc.—in kegs or cartons.

THE MASTER PRODUCTS CO.

6400 PARK AVE. CLEVELAND 5, OHIO

(Continued from page 304)

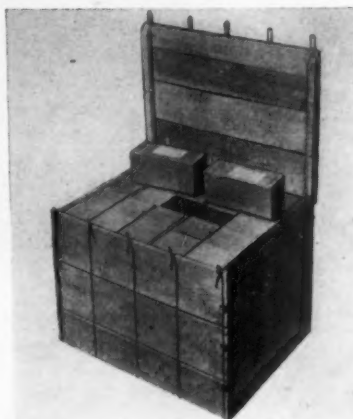
vance Molding Corp.; A. C. Manovill, Plastics Manufacturers, Inc.; William Scott, Allied Plastics Co.; C. W. Marsellus, Universal Plastics Corp. and Truman Handy, Celanese-Celluloid Corp.

One of the features of the conference is to be a large exhibit which will include hundreds of plastics items which have contributed so much toward the superiority of allied arms and equipment. Manufacturers will find special interest in that section of the exhibit which is to provide a "bird's-eye" view of plastics in the post-war world.

1 1 1

ALL-BOUND BOX PROTECTS VITAL MEDICINES

Intravenous solutions and serums are most urgently needed on all war fronts. General heavy duty All-Bound boxes are used to protect these precious medical supplies. Many thousands of boxes have gone from the United States to advance medical bases all over the world without damage.



War Medicines in All-bound Box

Steel wires reinforce the All-Bound box on all six faces, giving it steel-bound protection and helping it to withstand the jolts, jars and bumps it will encounter.

A one-piece shook, the All-Bound is packed flat and is two-thirds assembled. Consequently, it saves space in storage—and time in assembly. After it is packed, the General All-Bound is firmly closed and sealed, protecting its valuable contents. Upon arrival, the box can be quickly and easily unpacked as the solutions and serums are speeded to the bedsides of the wounded men.

1 1 1

SAE 1944 HANDBOOK REFLECTS WARTIME TECHNICAL PROGRESS

Wartime industrial and technical progress in developing new methods and materials facilitating war production are reflected in the SAE Handbook, 1944 Edition, published by Society of Automotive Engineers. The Handbook presents in 630 text pages new and revised data, particularly standards, specifications, and classifications.

New features include: Specifications

for medium- and heavy-duty coolant hoses; detailed standards for straight and taper pipe threads; standards for tractor power take-off and drawbar-hitches, including safety protectors; standards for spring lock washers; and nomenclature for pistons and piston-rings.

Revised data include: Classification of natural and synthetic rubber compounds; tables on steel hardness conversion numbers; standards for tube fittings on fuel and oil lines; and specifications for non-ferrous metals, including solders, and both cast and wrought aluminum, magnesium, brasses, bronzes, and bearing and bushing alloys.

The Handbook, published and issued only by SAE, is available at SAE headquarters, 29 West 39th St., New York 18, for \$5 per copy.

1 1 1

PLANT EQUIPMENT TO BE FEATURED AT NATIONAL POWER SHOW

Equipment for the control and distribution of power will be the feature of principal interest at the 16th National Exposition of Power and Mechanical Engineering, which opens in New York the last of this month. The exposition dates run from November 27 to December 2, and it will be held in Madison Square Garden, where the last power show was held two years ago. It is reported that the display of machine tools promises to be larger than usual, and that it will disclose a number of worthwhile advances in production technique growing out of war production experience. The majority of exhibits will deal with light, heat, power, water, steam, compressed air, heating and ventilating, and materials handling systems.

1 1 1

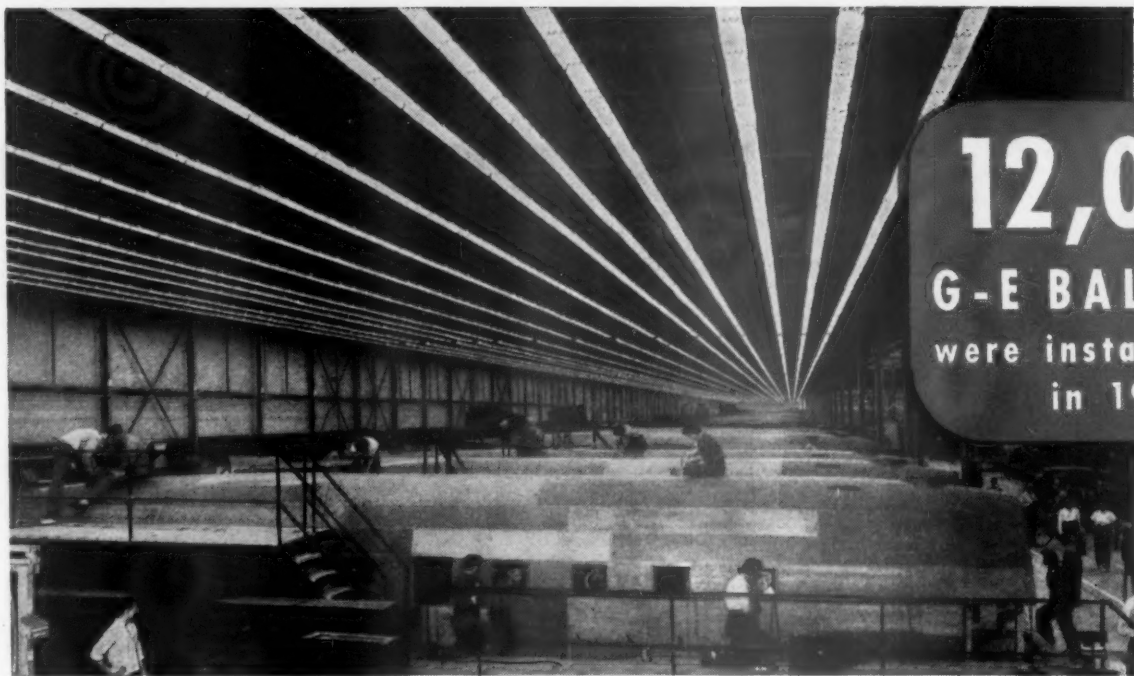
BIG CUTBACK ON ALUMINUM PRODUCTION

Aluminum metal production will be terminated at plants in Riverbank, Calif., and Burlington, N. J., and reduced by one-third at the Torrance plant in Los Angeles, Calif., because of an increasing ingot surplus, according to announcement by the War Production Board. The total cutback represents the shutting down of four potlines having a monthly capacity of 12,000,000 pounds. The three plants, all owned by the Defense Plant Corporation, are operated by the Aluminum Company of America.

Coinciding with the announcement of the curtailments at these Government-owned facilities, the Aluminum Company of America informed the WPB that it is closing one potline at its Alcoa, Tenn. plant, reducing monthly production by 800,000 pounds, to assist in cutting down the large aluminum surplus.

POSITION WANTED

PURCHASING AGENT — Long experience in engineering and machinery lines; purchasing, drafting, specifications, checking drawings, inspection estimating. Graduate C.E. Ohio State; member A.S.C.E. A.S.T.E. Ohio Engr. Soc. Age 56; excellent health; 6' 1" 220 lbs. References. Address H. L. c/o Purchasing Magazine.



12,000
G-E BALLASTS
were installed here
in 1942

**ONLY 6 have failed electrically
in 2 years of round-the-clock
operation**



G-E Forlamp ballast

THREE years ago, 12,696 G-E Forlamp ballasts were ordered for the large fluorescent lighting installation at this Midwestern bomber plant. About 12,000 units were actually installed, the remainder to be used as spares. The lighting was turned on in October, 1942.

To date, only six ballasts have had to be replaced on account of electrical failures. Because of this record, the maintenance engineer plans to list as surplus most of the remaining ballasts he has in stock.

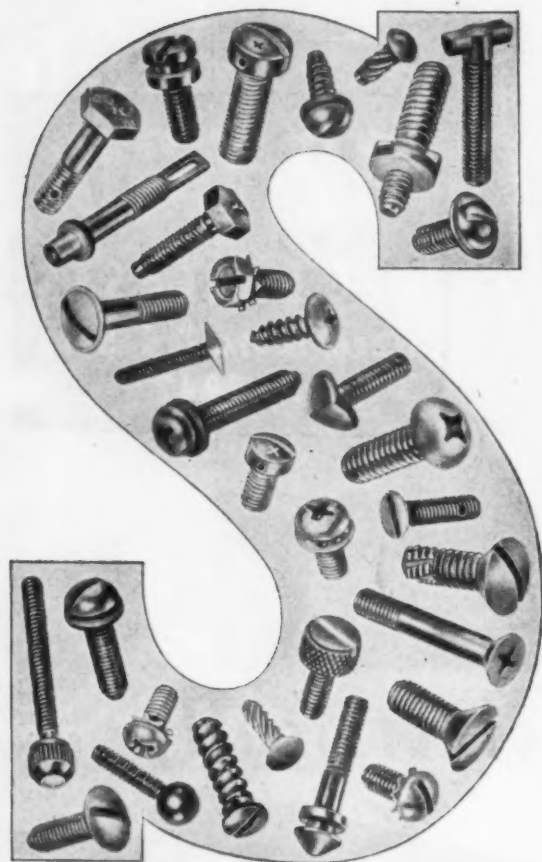
This experience is not unique. There are approx-

imately 1,152,000,000 watts of G-E ballasts now in service, most of which are helping to light America's war plants. Their over-all performance record has been better than 99.5 per cent perfect.

Our newly revised catalog (GEA-3293F) contains complete information on our comprehensive line of single-lamp, Tulamp, three-lamp, and Forlamp ballasts, including data on the new, two-way-lead design that permits the leads to be brought out either the ends or the bottom of the ballast case. Ask your G-E representative for a copy, or write to General Electric Company, Schenectady 5, N. Y.

Buy all the BONDS you can — and keep all you buy

GENERAL  ELECTRIC



3 Standard Fastenings for Production Efficiency



1 Phillips Recessed Head Screws—The modern, effective, time-saving fastening device proven in tens of thousands of assembly lines. Other standard head styles are also available.

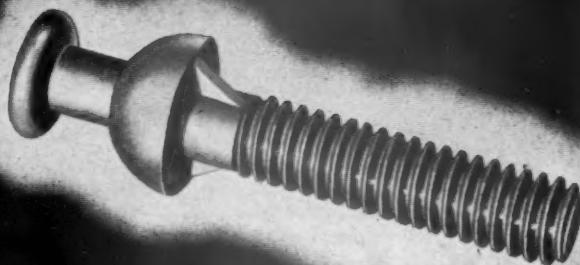


2 Self-Tapping Machine Screws—Eliminate separate tapping operations for fastenings to castings, heavy gauge sheet metal, and plastics. Also available with Phillips Recessed Head.



3 Washer-Screw Assemblies—When use of lock washers is indicated, the time-saving of pre-assemblies is obvious. Also available in standard slotted head styles.

AVOID UNNECESSARY ASSEMBLY DELAYS BY PLANNING YOUR FASTENINGS NOW



"Cold-forging"—proof #25
...more each month

Forethought, when your product is still in the design stage, can mean timely delivery of fastenings for that "long planned" fast assembly job. Your early and precise choice of fastenings—standard or special—may be vital to the fast and exacting assembly job required for an advantageous start on postwar production.

That's where Scovill comes in . . . our broad experience in fastenings and ingenuity in special design qualify us as specialists in the fastenings field. Let us help you determine the best modern fastenings to use—a featured standard fastening or a part especially designed to suit your needs.

The part shown above is one of Scovill's many special purpose cold-forged items. Our special processing of this part meant substantial savings in money—materials—motions. Call our Fastenings Expert for assistance so that you likewise may profit. Call him **now**.

SCOVILL MANUFACTURING COMPANY WATERVILLE SCREW PRODUCTS DIVISION

WATERVILLE 48, CONN.



TEL. WATERBURY 3-3151

NEW YORK, Chrysler Building • DETROIT, 714 Fisher Building • CHICAGO, 1229 W. Washington Boulevard • PHILADELPHIA, 18 W. Chelton Avenue Building
PITTSBURGH, 2882 W. Liberty Ave. • SYRACUSE, Syracuse-Kemper Insurance Bldg. • LOS ANGELES, 2627 S. Soto St. • SAN FRANCISCO, 434 Brannan St.

A Standard in the Industry for Half-a-Century



Champion Coal

STEAM

POWER

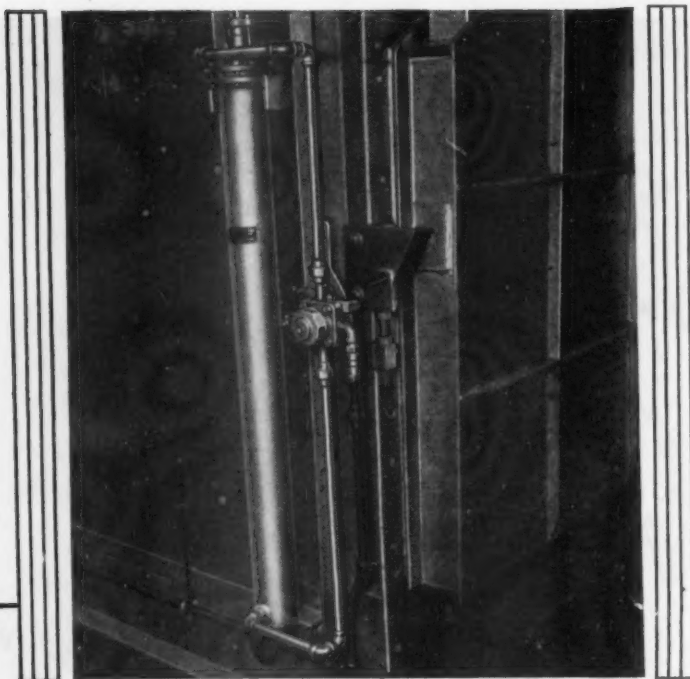
BY-PRODUCTS

Always an Assurance of Top Yields

PITTSBURGH COAL COMPANY

General Offices: OLIVER BUILDING • PITTSBURGH, PA.

Cleveland, O.; Sault Ste. Marie, Mich.; Buffalo, N. Y.; Utica, N. Y.; New York City; Philadelphia, Pa.; Youngstown, O.
PITTSBURGH COAL CO., LTD., London, Ont., Hamilton, Ont., Toronto, Ont., Windsor, Ont.
PITTSBURGH COAL CO. of Wisconsin, Duluth, Superior, Minneapolis, St. Paul • MILWAUKEE-WESTERN FUEL CO., Milwaukee, Wisconsin



Used by Curtiss-Wright Corporation at
Buffalo and St. Louis plants.

CURTIS AIR CYLINDERS

**Improve Production, Save Man-Power,
Lower Production Costs**

It's often a simple matter to powerize a hand operation with a Curtis Air Cylinder and not only increase production efficiency, but save labor, lower costs, and release men for other jobs, too.

Illustrated above is a Curtis Air Cylinder used to operate an oven door at the Buffalo plant of Curtiss-Wright Corporation—only one of hundreds of lifting, pulling, or pushing operations that can be handled by this equipment.

Curtis Air Cylinders have a record of unfailing service in many industries due to their rugged construction and simplicity of design; they are easily operated by women employes. Installation cost is small and power consumption low, using regular shop air lines. Because of their efficiency, negligible maintenance expense, and long life, important savings are almost inevitable wherever Curtis Air Operated Cylinders or Hoists are used.

Why not check your plant to see where Curtis Air Power can be used to advantage? Our free booklet, "How Air Is Being Used in Your Industry," will give valuable suggestions. Send for it today.

CURTIS

ST. LOUIS • NEW YORK • CHICAGO • SAN FRANCISCO • PORTLAND



CURTIS PNEUMATIC MACHINERY DIVISION
of Curtiss Manufacturing Company
1908 Kienlen Avenue, St. Louis, Missouri

● Please send me
booklet, "How
Air Is Being Used
in Your Industry."

Name.....
Firm.....
Street.....
City.....State.....

Stay Out of Court

(Continued from page 111)

to every possible case in which a fiduciary relationship exists. It may be moral, social or business. The rule embraces those informal relations which exists when one man trusts and relies upon another. The relationship of principal and agent are similar instances, in which the principle of fiduciary relationship applies, in the strictest sense.

Fraud comprises all acts, of omissions and concealments, including breach of legal or equitable duty, trust or confidence. Deceit is a species of fraud. Sometimes the words are used interchangeably,

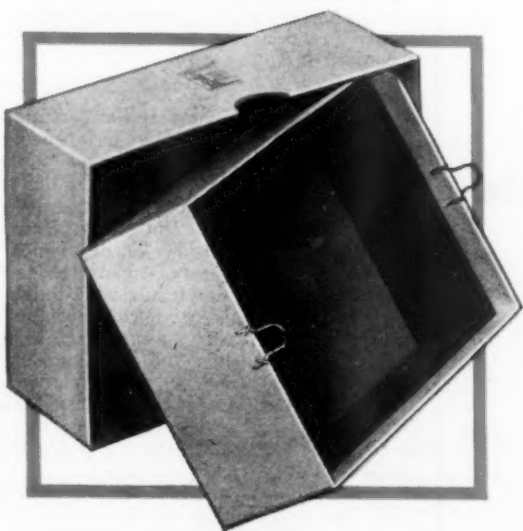


For example, in the leading case of *Standard Tilton Milling Company v. Mixon*, 9 So. (2d) 911, it was shown that a seller sued a purchaser to recover the contract price for 220 barrels of flour. The contract was in writing and signed by both the purchaser and the seller's salesman. However, the purchaser testified that he did not read the contract but relied upon the representations of the salesman that the contract contained a clause that the purchaser was not bound to order out any flour under the contract, but could cancel the contract at any time by notifying the salesman to this effect. The purchaser testified further that he notified the salesman to cancel the contract and then was informed that the written contract contained no clause authorizing him to cancel or rescind the contract.

It is interesting to observe that the higher court held the purchaser within his legal rights in relying upon the verbal statements made by the salesman.

The decision rendered by this modern higher court is unusually important, because many of the older courts have held that a purchaser who signs a written contract must read and understand his assumed obligations. See following cases: *Bay Company v. Stapleton*, 224 Ala. 175; and *Shepherd v. Kendrick*, 236 Ala. 289. Also, see *Staford v. Colonial*, 130 So. 383.

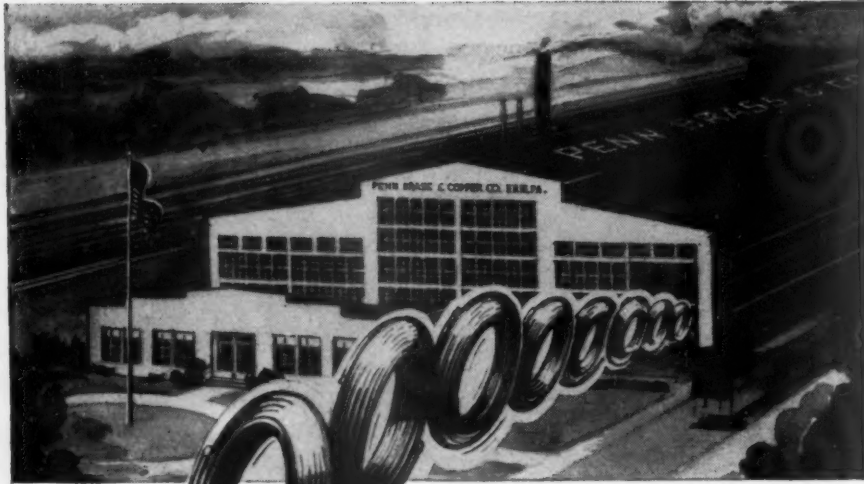
(Continued on page 312)



SOUNDS like double-talk, but it's just the accepted military method of giving the code frequency for the day. "Johnny" may be the code for any one of the numerous frequency channels used by our armed forces. The fact that "Johnny" is Roger (or O. K. for the day) is due to the use of little quartz crystals of varying thickness, each one of which swiftly and accurately establishes a specific frequency channel. Sets of these tiny, yet highly important, crystals are delivered safely in Mason Mailmasters to our armed forces all over the globe, guaranteeing maximum security in the transmission of military messages.

The **MASON BOX COMPANY**

ATTLEBORO FALLS, MASS.—175 5TH. AVE., NEW YORK



SIZES:

1/8" 3/16"

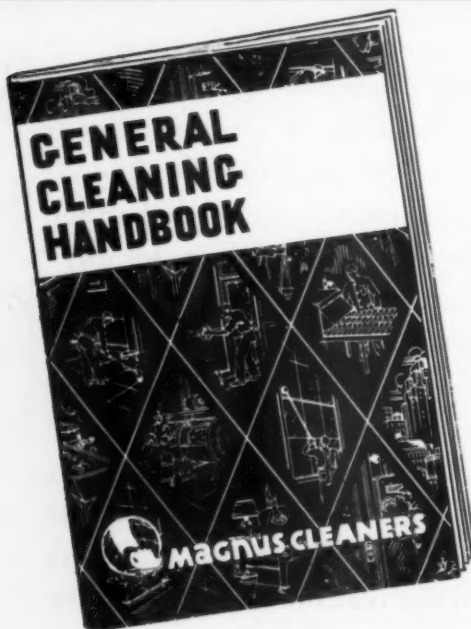
1/4" 5/16" 3/8" 7/16"

1/2" 5/8" 3/4"

NEED COPPER TUBING?

SUPERIOR Tubing features uniform wall thickness—annealing to specifications—bright finish inside and out—ends sealed and machine wrapping for 50 and 100 ft. coils. Write for data.

PENN BRASS AND COPPER COMPANY • ERIE, PA.

PENN BRASS AND COPPER
TUBING


The first complete data book on methods and materials for cleaning floors, walls, painted surfaces, windows, kitchen equipment, dishes, and all the other cleaning jobs of the modern building and plant. Full of practical shortcuts and economies you can put right to work.

**Write Now
for
Copies of
This Complete
Manual on
Plant and
Building
Cleaning
Operations!**

MAGNUS


MAGNUS CHEMICAL COMPANY • 93 SOUTH AVENUE • GARWOOD, N. J.

SPECIAL CLEANERS

Stay Out of Court

(Continued from page 310)

In *Stone v. Walker*, 77 So. 554, 557 L.R.A. 1918C, 839, the higher court held that as a condition precedent to the exercise of the right to cancel the contract for fraud, the purchaser must, if practicable, restore, or offer to restore, to the seller the merchandise previously received by virtue of the contract.

1 1 1

Who Buys for the Petroleum Industry?

(Continued from page 83)

mate knowledge of the work for which it is responsible than the other group, then the influence of the one group will naturally outweigh that of the other.

"There is a tendency on the part of some operating organizations and some purchasing organizations to be domineering and to assume a high-handed attitude by belittling the knowledge and ability of the other group. Under this arrangement, best results are not possible. A cooperative understanding must exist between the purchasing and operating organizations. They must exchange ideas with sufficient frequency to keep each other informed on the problems and functions of the other.

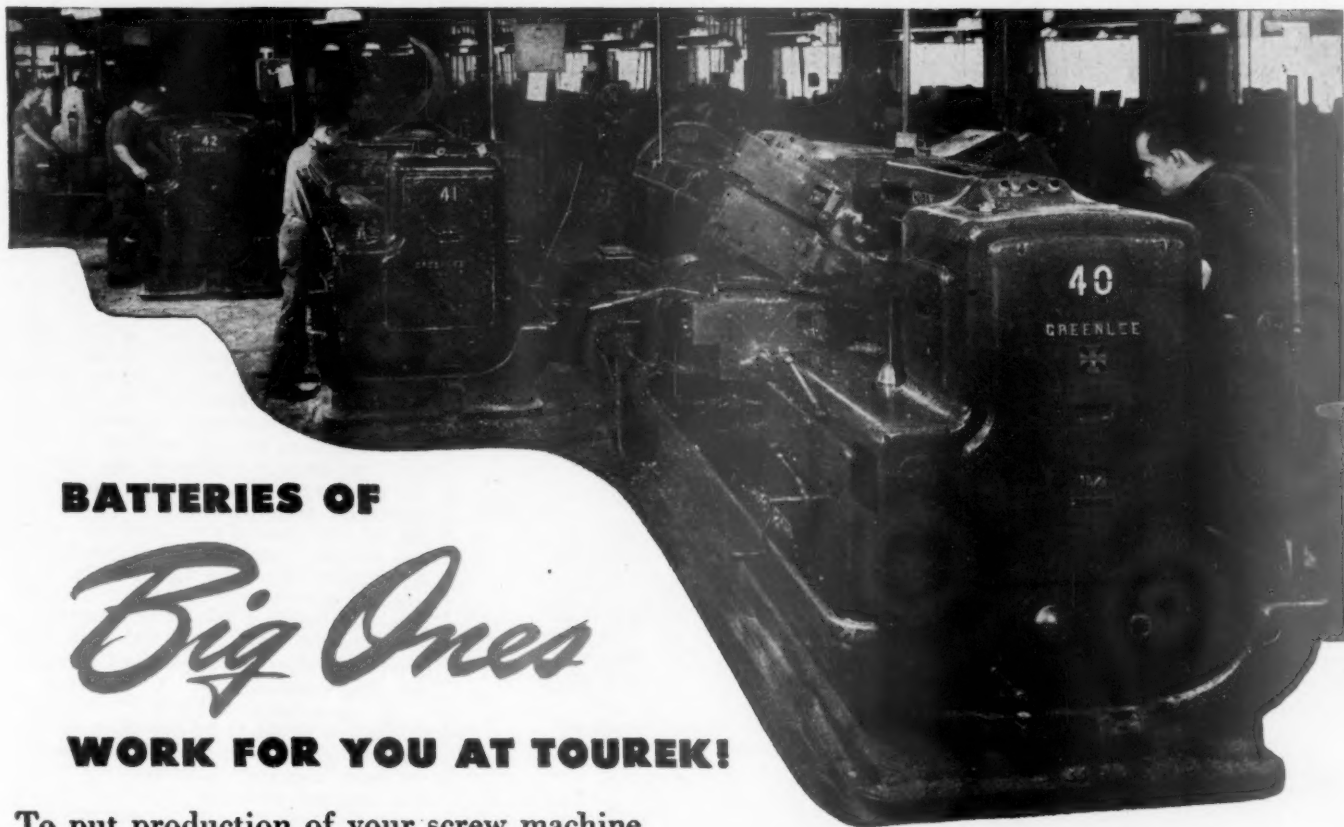
"In the case of our company, the sources of supply for between 10% and 20% of the materials acquired for our use are determined by the operating department specifying a particular item of material for a certain use, leaving little or no opportunity for the purchasing department to make an alternative selection of material. For the other 80% to 90% of the material required for use in our operations, the purchasing department is given a free hand as to suppliers of material, and shares a cooperative responsibility in specifying the materials to be acquired for our use."

Exhibit VI.

"There is no doubt that the conditions and procedures governing the procurement of equipment and supplies vary considerably among the operators in the oil industry, and I presume that is true of every other industry. But concerns large enough to have divisions or departments composed of engineers, superintendents, foremen, etc. also find it advisable to have additional divisions or departments such as executive, treasury, accounting, sales, and even purchasing, and even the least bit of investigation by those interested would bear out the fact that each of these departments has responsibilities, some of which are joint and some of which are individual.

"The number of individuals charged with the responsibility of the various departments involved in procurement depends on what is to be procured. If the construction of a recycling plant is authorized, it is the prerogative and responsibility of the executive department to establish the limit as to the size or capacity of the plant. With that in mind, it is the responsibility of the engineers then to offer a proposal in the way of design, and from such proposal eventually the final design or plan evolves, but only

(Continued on page 314)



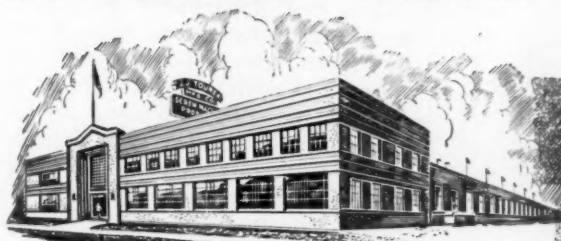
BATTERIES OF

Big Ones

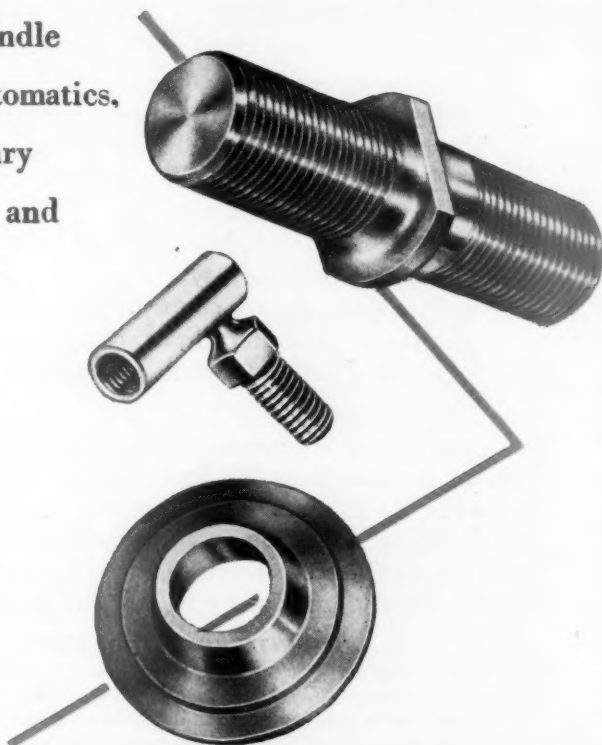
WORK FOR YOU AT TOUREK!

To put production of your screw machine products on a real volume basis, Tourek is fully equipped with the "big ones"—four- and six-spindle automatics of latest design. These and smaller automatics, together with all necessary machines for secondary operations, backed up by outstanding tool room and engineering facilities, enable Tourek to produce your parts in any quantity... in any type of metal... and in any size up to 2½ inches. Put Tourek's engineering ingenuity, top notch equipment, and successful experience of nearly a quarter century to work for you!

J. J. TOUREK MFG. CO.
4701 W. 16TH STREET CHICAGO 50, ILLINOIS



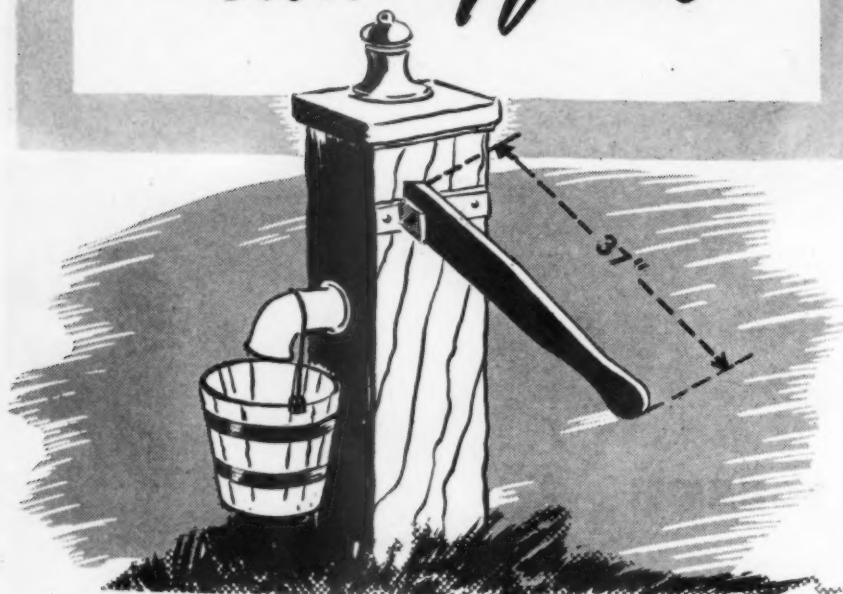
**MAKERS OF THE FAMOUS
TOUREK BALL JOINTS**



ESTABLISHED 1920

TOUREK
PRECISION SCREW MACHINE PRODUCTS

how to buy ... *a cutting fluid*



• "It's hard to tell the depth of a well by the length of the handle on the pump"... and it's even harder to tell the real worth of a cutting fluid by appearances alone.

For instance:

Lower viscosity does not necessarily mean more effectiveness at the work area.

Dark oils are often cleaner than light-colored, clear-looking oils.

More total sulphur does not always mean better cutting quality.

Straight oils are often better refrigerants at the point of contact than soluble products.

Long dilutions often outperform oils used straight.

The wise buyer measures cutting fluids by how they perform on the machine. To find the best performing oil for his needs, he looks to experience.

D. A. Stuart Oil Co., specialists in industrial oils since 1865, share their experience with thousands of such wise buyers. They stand ready to do the same for you.

WRITE FOR YOUR COPY

of the New Stuart 60 page handbook: "Cutting Fluids For Better Machining." It is full of data—information that you will find a helpful guide to the most efficient use of cutting fluids. It is free to executives and engineers.

D.A. Stuart Oil co.

LIMITED

2757 SOUTH TROY STREET, CHICAGO 23, ILL.

ESTABLISHED 1865

Warehouses in Principal Metal-Working Centers



Who Buys For the Petroleum Industry?

(Continued from page 312)

after conference with those individuals charged with the responsibility for operating and maintaining the plant and those charged with the procurement of materials with which to build it. In the case of this company, and most every other company with which I am familiar, the latter is the purchasing department.

"Requisitions for such materials and equipment are then prepared by the engineering and construction departments, and there the responsibility of those two departments comes to an end as far as the actual procurement of the required equipment is concerned. It is true that the requisitions must of necessity contain specifications—not naming any certain make or vendor, but rather stipulating capacities, performance, type, etc.—both for the protection of those preparing them and for the protection of the purchasing department. But they must also be flexible and open enough to permit competition. Included in these requisitions are not only the 'bolts, nuts and nails' but everything else that is required to make the plant complete.

"If any great deviation from the specifications is found to be necessary by the purchasing department, it would be highly arbitrary and very poor policy for the man charged with the responsibility of purchasing not to call a conference of those concerned and discuss the matter with the thought in mind of arriving at a solution, keeping the best interest of the company in mind.

"Similar procedure is followed with respect to drilling, production, transportation, manufacturing, marketing, and all other divisions of the industry where construction and equipment is required. When there is a question of introducing new types of materials for use in maintenance and operations, if the matter is of any consequence, the research laboratory is also called into the picture for counsel and advice, and for making tests if necessary."

Summary.

Having compiled the instances, we are now in a position to infer the general truths from them, and the truths in these representative and authoritative reports bear little resemblance to the blatant statements cited in the opening paragraphs. The fundamental truth that emerges is that the responsibility for materials in the petroleum industry is a co-operative responsibility, in which the various steps and functions are very clearly defined. This is a question of fact, not of opinion or argument. When one department gets over-ambitious in its claims, takes in too much territory and attempts to arrogate the complete authority as its own, the resulting statements are not only false, but rather ridiculous as well. Probably the most common error of this sort is the attempt to claim authority for purchases, as in the present case.

Purchasing Agents are used to
(Continued on page 318)

NOW you can **GET** *these McKay Welding Electrodes*

These Commercial Grades of
Stainless and Mild Steel Welding
Electrodes are now available.

McKAY STAINLESS STEEL ELECTRODES

(All Diameters .075" to 1/4")

- 18-8, Type 308
- 18-8 Cb., Type 347
- 18-8 Mo., Type 317
- 25-12, Type 309
- 15-35, Type 330
- 15-60
- 25-12, Type 309
- 25-20, Low Carbon-
Heat Resistant

STRAIGHT CHROMIUM

- 4-6 Cr., Type 502
- 12 Cr., Type 410
- 16 Cr., Type 430
- 18 Cr., Type 442
- 28 Cr., Type 446
- TOOL AND DIE

McKAY MILD STEEL ELECTRODES

(All Diameters 3/32" to 3/16")

- No. 16—A.W.S., E-6020 & E-6030
- No. 15—A.W.S., E-6010
- No. 17—A.W.S., E-6012
- No. 116—A.W.S., E-6012 & E-6013
- No. 3—A.W.S., E-4520
in straightened and cut lengths
or coil form for automatics
- No. 19—Cast Iron

*We can now give good service on
orders for small sizes such as—.075"
and 3/32", formerly so hard to get, be-
cause of recent increases in our capacity
for producing the smaller diameters.

An easing supply situation now makes McKay Stainless and Mild Steel Electrodes available for commercial purposes. A list of these two grades for nearly every type of arc welding, appears at the right.

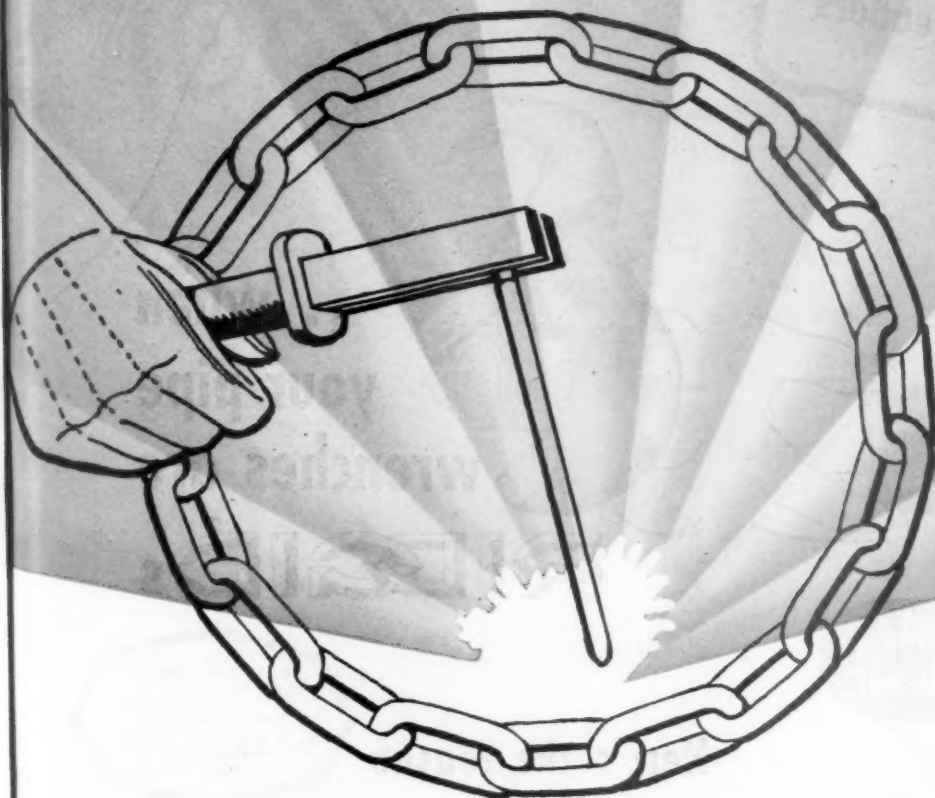
If you have been having trouble obtaining the Electrodes you require, here is an opportunity to get these grades from The McKay "researched line." Inventories are being gradually built up which should permit a more consistent supply of most of these analyses both now and in the future.

Your inquiry or order will receive prompt attention.

General Sales Office: York, Pa.

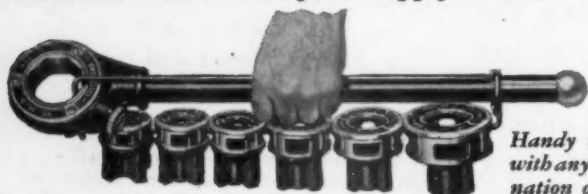
THE MCKAY COMPANY
PITTSBURGH, PA.

WELDING ELECTRODES . . . COMMERCIAL CHAINS . . . TIRE CHAINS





● Pick up any 11R die head you want, $\frac{1}{8}$ " to $\frac{1}{4}$ ", snap it into the ratchet ring, start threading—that's why these tough little steel-and-malleable No. 11Rs are such handy time-savers. No special dies needed for close-to-wall threads—simply reverse alloy steel chasers in head—they come out easily for regrinding, too. Smooth internal ratchet. You'll like these smart threaders—ask your Supply House.



Handy carrier with any combination of sizes.

Sold by Supply Houses Everywhere

RIGID
★ PIPE TOOLS ★

THE RIDGE TOOL COMPANY
Elyria, Ohio, U. S. A.



Here's the reason

● The housing, weak spot of ordinary pipe wrenches, is a strong part of the **RIGID**; guaranteed not to break or warp, this ends practically all your bother and expense of wrench repairs. **RIGID** design also gives you adjusting nut easy to get at, that spins readily to pipe size. Replaceable jaws take hold and let go instantly, won't lock on pipe—and full-floating hookjaw has handy pipe scale. You'll like the strong comfort-grip I-beam handle of this popular pipe wrench. Buy **RIGID**—at your Supply House.



You need **RIGID** End Wrench for pipe in coils or against flat surfaces!

Millions of **RIGID** Tools in use



66% Saved on Production Cost Using Speed Treat Plate and Simple Heat-Treatment!

A large plastics molding firm replaced high alloy steel with *Speed Treat* medium high carbon hot rolled open hearth steel plate for the compression mold die shown.

Costing less than a third of the steel it replaced, *Speed Treat Steel* proved easier to machine and has turned out over one-half million molded parts with no appreciable wear and no signs of fatigue or breakage in the inside walls of the die which are only .350" thick. In operation, a pressure of 60-tons is exerted on the mold.

Size and weight of the mold were also reduced—an important factor since it is handled by women.

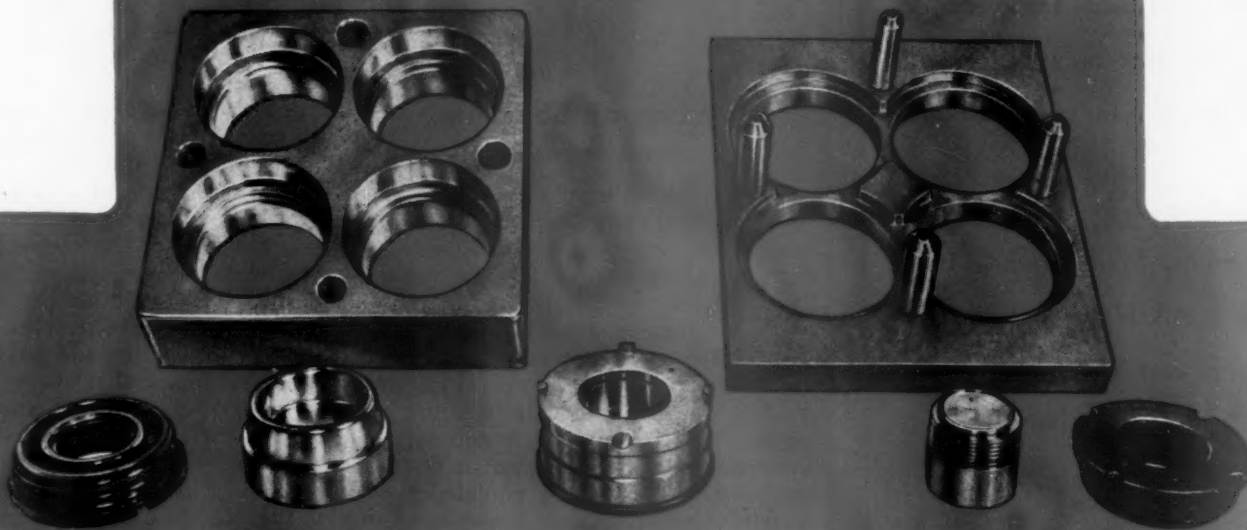
A uniform case $\frac{1}{16}$ " deep was developed by pack

carburizing. Starting with a carbon content of 0.49%, drillings showed the case had an average carbon content of 1%, varying from 1.13% on the surface down to .95% at a depth of $\frac{1}{16}$ ".

After carburizing, hardening was accomplished by heating in controlled atmosphere to 1500° F., followed by an oil quench. A test showed a surface hardness of 62 Rockwell "C" had been developed.

SPEED TREAT
Plate Provides.....
Better Finish
Lower Machining and Tool-
ing Cost
Ideal Response to Heat
Treatment
Negligible Heat Treat Dis-
tortion
Reduced Weight
As Much As 66% Lower Ma-
terial Cost
Savings in Production Time
Lowest Ultimate Cost

The high surface hardness, exceptional tensional strength, and body toughness so readily produced with the simple heat treating procedure outlined renders this unusual steel practical for use where high carbon steels and other costlier steels were formerly thought necessary. The economical advantages of *Speed Treat* warrant its consideration for your postwar dies, shoes and molds; wear, surface and bolster plates; gears and sprockets, machine ways and numerous other parts, many of which are pictured in Catalog 1243, sent on request.



W. J. HOLLIDAY & CO.
Speed Case-Speed Treat Plate Division
Hammond, Indiana
"Established 1856"

PLANTS: HAMMOND AND INDIANAPOLIS, INDIANA

Quality Controlled Speed Case and Speed Treat Steel Is Available In All Common Plate Sizes from these Distributors

Beals, McCarthy & Rogers, Inc.
Buffalo, New York

The Burger Iron Company
Akron, Ohio

Brown-Wales Company
493 C. Street, Boston, Mass.

Horace T. Potts Company
East Erie Ave. & D St., Philadelphia, Pa.

Peckover's Limited, 77 Front Street, E., Toronto, Ont., Canada

OBTAINABLE AFTER DEC. 1ST
Peninsular Steel Co.,
1030-40 McDougall Ave., Detroit.
Earle M. Jorgensen Co.,
5311 Clinton Drive, Houston.
10510 So. Alameda St.,
Los Angeles 54, Calif.
1657 22nd St., Oakland 7, Calif.
Grammer, Dempsey & Hudson, Inc.,
Newark, New Jersey



SPARTANS CUT CUTTING COSTS

For Your Metal Cutting Men

The Spartan Line of Hack Saws and Band Saws offer the right blade for every job, blades that today are out in front in hundreds of plants.

Furnished in Kutall Molybdenum, High Speed, Flexard, All Hard and Flexible types and Metal Cutting and Wood Cutting Band Saws.

Stocked by Distributors
everywhere.

Spartans Get Results
Spartan Saw Works, Inc.
SPRINGFIELD, MASS.

Who Buys For the Petroleum Industry?

(Continued from page 314)

such disparagement. In several of the replies from purchasing men, the whole situation is good for a laugh. Typical also is the comment, "Personally, I do not believe that such statements or insinuations warrant the recognition of a rebuttal." Nevertheless, we deem it a part of our duty to purchasing men and to management to set the record straight. Loose talk of this nature, if taken seriously by management, can result in business casualties, and it ought to be subjected to factual analysis. What is the truth of the matter? Specifically:

1. The petroleum industry is not unique with respect to its purchasing practices, but generally follows the standard, efficient organization and policy of centralized purchasing.

2. The purchasing department does not "requisition" anything—not even bolts, nuts and nails—but does purchase everything up to and including a complete recycling plant upon requisitions that apprise purchasing of the need.

3. Specification is a joint responsibility in which the Purchasing Agent has a part. Selection of prod-

ucts and suppliers within the limits of the specification is exclusively the prerogative and responsibility of the Purchasing Agent.

4. Engineering approval of certain products and materials is a proper prerequisite to purchase, but the selection of products and suppliers to merit such approval is the responsibility of the Purchasing Agent.

5. "Real buying authority" is vested in the purchasing department, set up specifically to perform this function and to exercise that responsibility.

In closing, it is appropriate to quote from one other reply:

"Certainly any manufacturer who is even remotely familiar with the services rendered by a purchasing organization would not encourage the return of the 'horse and buggy' days when it was necessary for salesmen to solicit each individual responsible for the use or consumption of material with the attendant personal prejudices, absence of uniform policy and lack of performance records. The great amount of confusion and expense that would accrue to the manufacturer and the users of his materials, equipment and supplies would eliminate such a manufacturer from modern competition."

Spending and Saving

(Continued from page 116)

A contract is illegally awarded if discrimination has been exercised against the lowest responsible bidder who has complied with the terms of the specifications. Since no contract can be amended or withdrawn after it has been awarded, redress for the unsuccessful bidder is then possible only through the courts, with attendant notoriety. Newspaper accounts of even an unintentional error destroy confidence in public officials and sometimes lead to repercussions that might well be avoided through adequate publicity prior to the actual award of contracts.

The importance of accuracy in handling bids should be kept constantly in mind in this connection, since all transactions pertaining to the awards involve a mass of detail and hence are subject to error. Frequently an institution makes a mistake in submitting requirements lists. A figure may be typed on the wrong line, and as a result a carload of butter is requisitioned in-

stead of a carload of eggs. A similar error may be made in the purchase bureau in entering the requirement on the proposal sheet, or a tabulator may overlook a memorandum which alters a bid so that the commodity awarded will bear no relation to the specifications. Contracts awarded under any of these circumstances may result in confusion and possible litigation or financial loss to the state. If an advance list of awards is issued, a telegram or notice to the purchase division will permit rectification of such errors. Obviously, the tentative list of awards is inexpensive insurance for the state against its own mistakes.

Further Advantages

A tentative list of low bidders or proposed awards has still other advantages. At certain times of the year inventories are low, and institutions may require prompt deliveries at the beginning of the contract period. If this condition is general, the contractor may find it impossible to give immediate service to all of the agencies unless he has

(Continued on page 320)



SAFE ARRIVAL

SUPERSTRONG boxes—"Bound with Steel"—give you complete shipping security. These sturdy wirebound boxes afford your products adequate protection while in transit, and insure their arrival safe and undamaged—just as you want them to arrive . . . For strength, for reliability, for expert design—your answer is SUPERSTRONG.

Our engineering department will be glad to design your shipping container for greater safety and economy. Contact us without obligation.



RATHBORNE, HAIR AND RIDGWAY COMPANY

Corrugated Box Division: Dearborn Paper Products Co.

1440 WEST 21st PLACE • CHICAGO 8, ILLINOIS

AMERICAN INDUSTRY PRODUCES MORE, FASTER, BETTER—WITH BOWSER EXACT LIQUID CONTROL

HOW A FAMOUS MANUFACTURER PROTECTS ENGINES DURING THE **THREE MOST CRITICAL** **MINUTES OF THEIR LIVES**

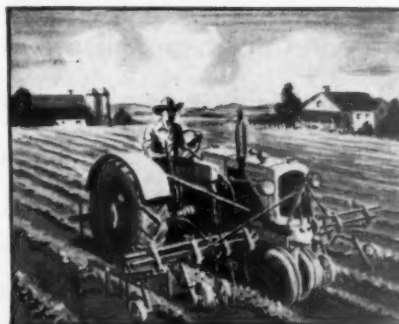
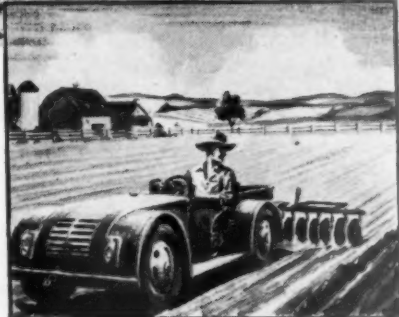


Engines made by Minneapolis-Moline Power Implement Company are doing some mighty essential work these days—such as powering the famous heavy-duty MM Jeeps and the many MM farm implements working to feed us and our Allies.

So every minute of an MM engine's years-long life is important. But most critical are the first three minutes of the initial run, for 70% of engine wear occurs during those minutes.

Now—enter Bowser Exact Liquid Control. Minneapolis-Moline protects its engines during the test run, including those three most dangerous minutes, with a Bowser Oil Circulating System that serves all test blocks.

Periodic losses from scored pistons and bearings have been completely eliminated. There's an important saving in oil, too. Previously, from 7 to 9 quarts were used in testing each engine. Now the oil loss is only about 60 gallons for each 300 engines tested.



Maybe your liquid control problem is different, but somewhere in your plant is a job that can be done better by a Bowser Meter, Filter, Proportioner, Lubrication System, Oil Conditioner, Pump or one of the many other Bowser products. BOWSER, INC., Fort Wayne 2, Indiana.

BUY WAR BONDS



Not only has Bowser's war production earned the Army-Navy E... Bowser equipment has helped earn it for scores of other companies.



The Name That
Means Exact Control
of Liquids

Spending and Saving

(Continued from page 318)

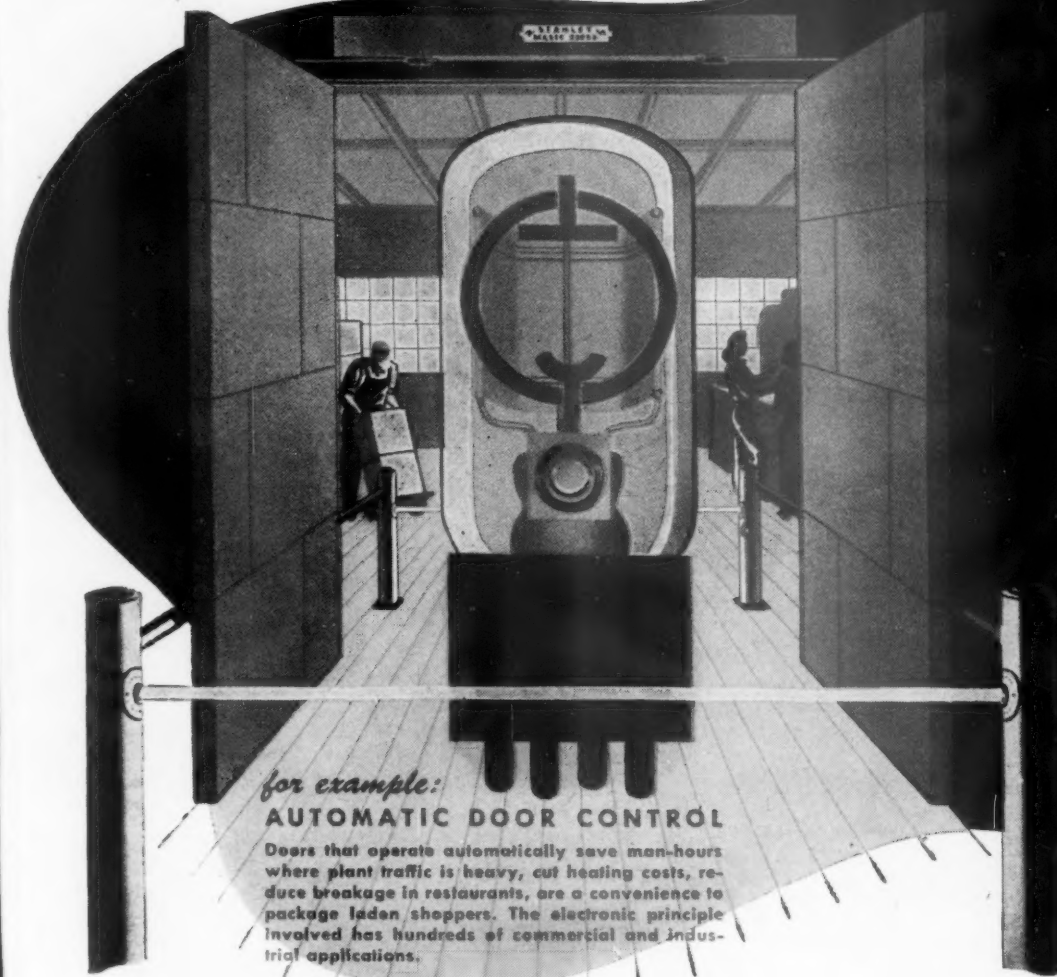
advance notice of the proposed awards. In theory, he receives the award notice in ample time to make his plans, but in practice the reverse may be true, particularly on monthly contract items such as meats. In order to insure prompt action, all branch agencies of a meat packer must be notified, equipped, and instructed for the proper handling of orders when they are received. If the low bidders have two or three days advance notice of prospective awards, they can make their preliminary arrangements while the technical routine of formal approval is being completed by the state. Then, upon receipt of the formal award, a telegram will serve to confirm the tentative instructions and shipments can be started promptly.

The objection is sometimes offered that some institution, department or agency may place an order on receipt of notice of tentative award, and before official approval of contract, and thus incur an unauthorized liability. All laws, however, are subject to transgression, and any officer who deliberately violates a law or a regulation having the force of law must accept the risk and penalty for such violation.

Another objection sometimes made to advance publication of proposed awards is that there may be a change between the tentative and final award of contract. However, this rarely happens, and the possibility of such a change is thoroughly understood, since the tentative award notice is admittedly issued only as information.

The official awarding of contracts should be simplified to the "nth" degree. A meeting of minds is essential to a contract; supposedly the engagement is based upon the information originally available to both parties, and not upon terms added after the agreement has been reached, as is too often the case. The request for bids, plus the offer to furnish, plus the state's legal acceptance of all or any part of the offer, as indicated by the formal notice of award—all over authorized signatures—constitutes a legal, binding contract. No contract should be amended after formal award, and every officially approved contract should be identified by a contract number. That number should be used in all references to the contract.

wherever a tube is used



for example:

AUTOMATIC DOOR CONTROL

Doors that operate automatically save man-hours where plant traffic is heavy, cut heating costs, reduce breakage in restaurants, are a convenience to package laden shoppers. The electronic principle involved has hundreds of commercial and industrial applications.

THERE'S A JOB FOR

Relays BY GUARDIAN

★ The "Magic Door" made by The Stanley Works of New Britain, Conn., uses a General Electric control unit which operates automatically at the approach of a pedestrian or vehicle. In this unit a beam of light focused on the cathode of a phototube causes a tiny current to flow. Enlarged through an amplifier tube this current operates a sensitive telephone type of relay such as the Guardian Series 405. Another phototube with an auxiliary relay, Guardian Series R-100, is employed to hold the doors open for anyone standing within the doorway.

The telephone type of relay is extremely sensitive and able to operate on the small current supplied through the electronic circuit. The auxiliary relay, Series R-100, is required to handle a greater current. It is a small, efficient relay having a contact capacity up to 1 KW at frequencies up to and including 28 megacycles. Contact combinations range up to double pole, double throw. Standard coils operate on 110 volts, 60 cycles, and draw approximately 7 V. A. Coils for other voltages are available. For further information write for Bulletin R-6.

Consult Guardian whenever a tube is used—however—Relays by Guardian are NOT limited to tube applications but are used wherever automatic control is desired for making, breaking, or changing the characteristics of electrical circuits.

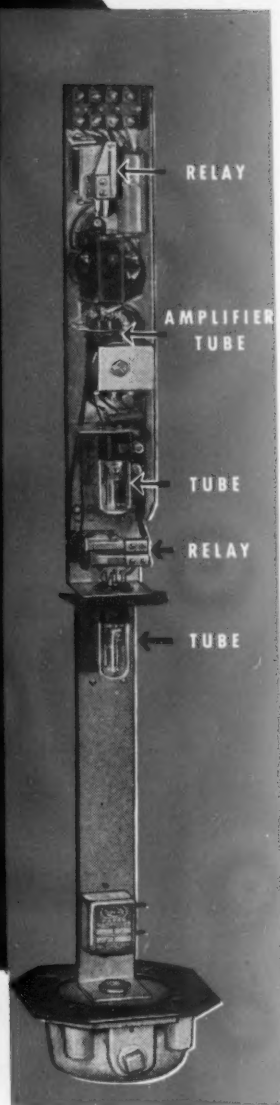
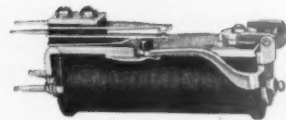
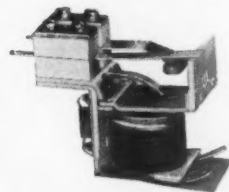


PHOTO-ELECTRIC DOOR CONTROL
Above unit manufactured by General Electric Co., is a part of STANLEY "MAGIC DOOR" CONTROLS.

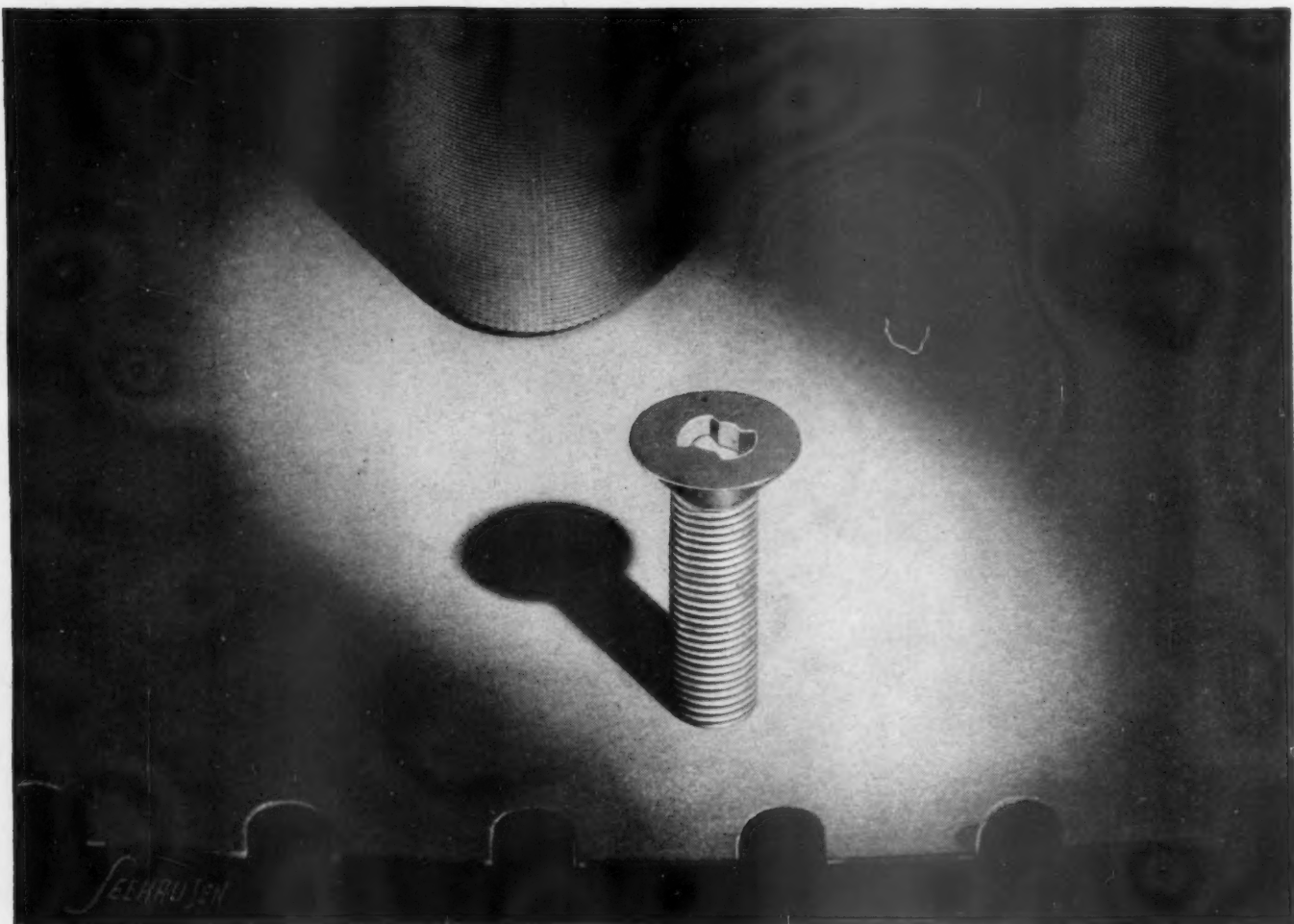


Series 405 Telephone Type Relay



Series R-100 H. F. Relay

GUARDIAN  ELECTRIC
1635-M W. WALNUT STREET CHICAGO 12, ILLINOIS
A COMPLETE LINE OF RELAYS SERVING AMERICAN WAR INDUSTRY



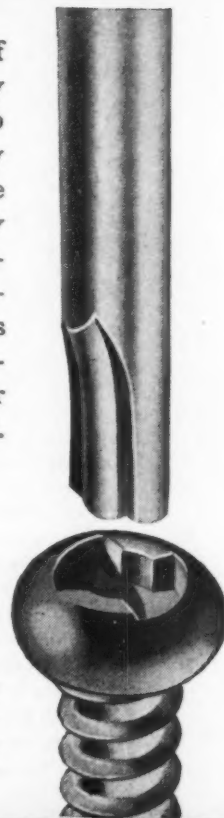
A Star Performer is conceded the center of the stage . . . *only* by virtue of outstanding merit. In the field of fastenings, CLUTCH HEAD is a star performer by any measure of comparison. It gives you every conventional advantage offered by any or all other assembly line screws, *plus several exclusive features that are not matched by any other screw on the market* . . . features that definitely contribute to reduced cost through higher speed, greater safety, and effortless ease in driving. CLUTCH HEAD also simplifies field service problems as no other screw can because the Clutch recess is designed for operation with an ordinary type screwdriver or any flat blade of proper width . . . the only modern screw engineered for Screwdriver Control.

Make your own test of CLUTCH HEAD's seven major features. You may do so by asking us to send you BY MAIL assortment of CLUTCH HEAD Screws, sample of the Type "A" Bit, and illustrated Brochure.

CLUTCH HEAD Machine Screws are available in regular and thread-forming types...production backed by this organization and by responsible Licensees.



This Type "A" Bit requires only a 60-second application of the end surface to a grinding wheel for full reconditioning to its original high efficiency.



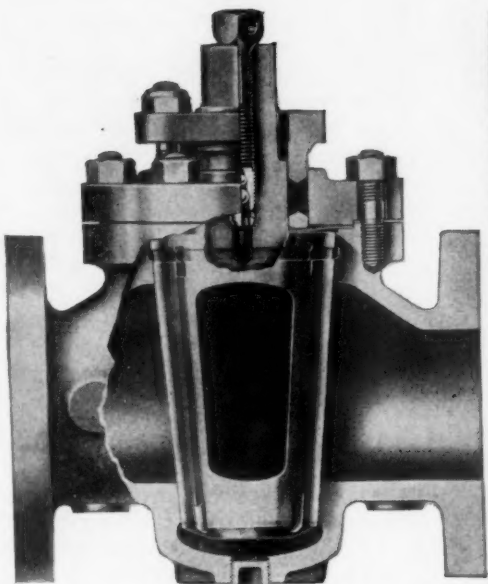
UNITED SCREW AND BOLT CORPORATION

CHICAGO 8

CLEVELAND 2

NEW YORK 7

MAKING *difficult* FLUIDS *easy* to handle WITH WALWORTH LUBRICATED PLUG VALVES



HERE are the reasons why Walworth Lubricated Plug Valves give excellent performance on many "difficult" services where other valves are not wholly satisfactory:

- These valves employ special insoluble stick-fed lubricants which protect the plug and body against contact with the line fluid, thus combating erosion and corrosion no matter how coarse or chemically-active the line fluid may be. An extensive line of stick lubricants is available for every type of service.

- Lapped surfaces of the valve are "pressure sealed" when the valve is in either the open or closed position. By merely turning the lubricant screw, lubricant is forced under high pressure to the bottom of the plug as well as into a grooving system which completely encircles the plug.

- This lubrication not only seals the valve against leakage, but also reduces friction between plug and body, thus permitting easy, quick full opening or tight shut-off with only a quarter turn of the plug.

Walworth Lubricated Plug Valves are made in a complete line of sizes from ½" to 24" for pressures from 125 to 5,000 psi., and for vacuum requirements. For full information write for Circular 67.



BOSTON WORKS
KEWANEE WORKS

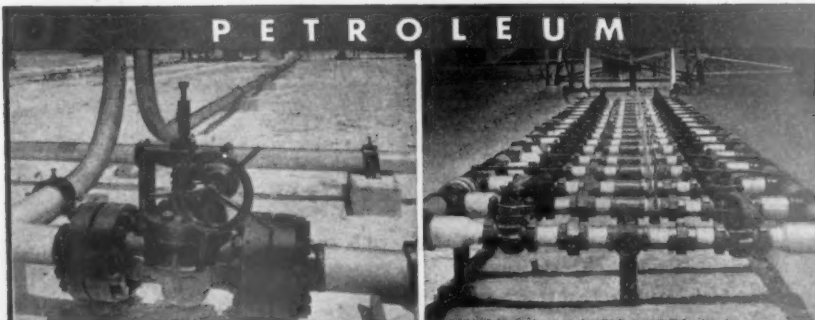
WALWORTH

valves AND fittings

60 EAST 42nd STREET, NEW YORK 17, N. Y.

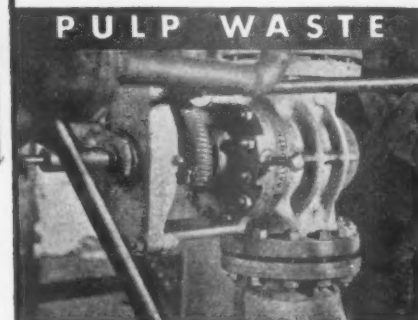


DISTRIBUTORS IN PRINCIPAL CENTERS THROUGHOUT THE "WORLD"



A 6-inch, 10,000 lb. test alloy steel Walworth Lubricated Plug Valve in a recycling plant.

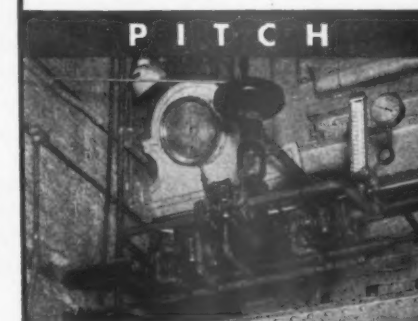
A battery of Walworth Lubricated Plug Valves on a production manifold in the petroleum industry.



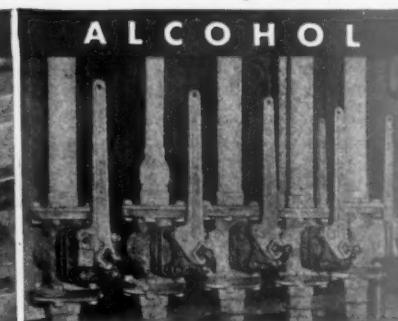
Over 8,300 "blows" in 3½ years of continuous service have been made by Walworth Ball Bearing Lubricated Plug Valves on digester blow-off service.



Liquid Soap in this textile mill finishing department is pumped through pipe lines equipped with wrench-operated Walworth Lubricated Plug Valves.



These steam-jacketed Walworth Lubricated Plug Valves handle hot petroleum pitch at 500° F. in this midwestern chemical plant. The jackets carry 150 pounds steam pressure.



Walworth Lubricated Plug Valves provide fast, positive flow control on many lines in this alcohol-producing plant, handling fluids ranging from hot mash to distilled spirits.

And many others including: Acids, Alkalies, Condensate, Dyes, Emulsions, Mud, Organic Solvents, Pharmaceuticals, Salt Solutions, Slimes, Slurries and Vacuum, in addition to the more general applications of Steam, Oil, Water and Gas.



Looking ahead to post war in-plant feeding

The AerVoID Mobile Cafeteria

Tomorrow's feeding of workers is being considered today by forward-looking managements.

Fewer workers, as War contracts run out, will necessitate simpler less-expensive ways of providing substantial balanced hot meals to workers, with lower payroll and operating costs and less food wastage.

The AerVoID Mobile Cafeteria has been planned by practical factory-feeding engineers to meet both present and post-war requirements for less-expensive worker feeding setups. Pick-up or dish-up service with fewer operators, yet fast and adequate . . . good, hearty hot meals serviced in a new low-cost way!



VACUUM CAN COMPANY
25 S. HOYNE AVE. • CHICAGO 12, ILL.



Write for
sample menu
Bulletin K

Shows balanced
hot meals that
can be served
with the
AerVoID
Mobile
Cafeteria

Molding Plastics

(Continued from page 106)

pression molded, the answer lies in material costs, and this in turn will usually be determined by the end-use, or the merchandising or eye-appeal of the article. In view of new developments and growing competition among plastics materials, new materials and changing prices bear watching.

Casting

The "casting" method of molding is carried on almost exclusively by a group known in the field as casters. In lieu of powdered or granular compounds, the molding is done with thermosetting resins in liquid form in very much the same way that molten metals are poured into molds. The resins, after being compounded and processed under temperature control, are poured into lead molds, and subjected to a vulcanizing or curing treatment that may take several days.

Custom molders do not make cast phenolic products, nor do the casters engage in molding the dry materials in the compression and injection processes. Casting involves an entirely different technique.

The lead molds are formed by dipping master patterns into molten lead, and the prepared resins are poured into the molds by hand as with an ordinary foundry ladle. After curing, the castings are removed from the molds. These molds are made by the dozen or the hundred, and of course the principle cost is the making of the master pattern or mandrel. Cast phenolic moldings are available for fabricating, as rods, tubes, sheets, and special shapes. The sheets are made in two ways: by curing large blocks of the prepared resin which are sliced into sheets, or by pouring between plates of glass.

Three types of molds are used in making cast phenolic parts. These include straight draw molds which employ a steel dipping arbor upon which open molds are formed. Such molds may include simple designs that run in the direction that the castings are removed from the mold. By the use of split or two-piece molds more complicated designs and undercuts are permitted,

and by the use of cored molds half spherical hollow castings and compound curves are possible.

Casting enables the making of unusually large parts. The Catalin Corporation, specialists in cast resins production, state "there are virtually no limits to how large a casting may be, and that units 20" square and 12" deep are now included in regular production."

Casting is now used for the making of hundreds of products. The standard rods, tubes, sheets and cast parts readily lend themselves to machining and fabrication. The cast products may be softened and formed by heating, and sheets of 3/16" or less are readily die cut after slight tempering. One of the advantages of cast resin molding is the low initial cost for parts of simple design.

The Extrusion Process

Extrusion is a form of injection molding that so far is restricted to the thermoplastic materials which set upon cooling. The molding materials are heated to a plastic state and then forced through a die onto a conveyor or table for cooling and hardening.

The process is extensively used for forming insulation for wiring and cables, and for the making of formed rods, tubes and strips for fabricating and product uses. Rods of practically any shape and strips of practically any cross section are readily produced.

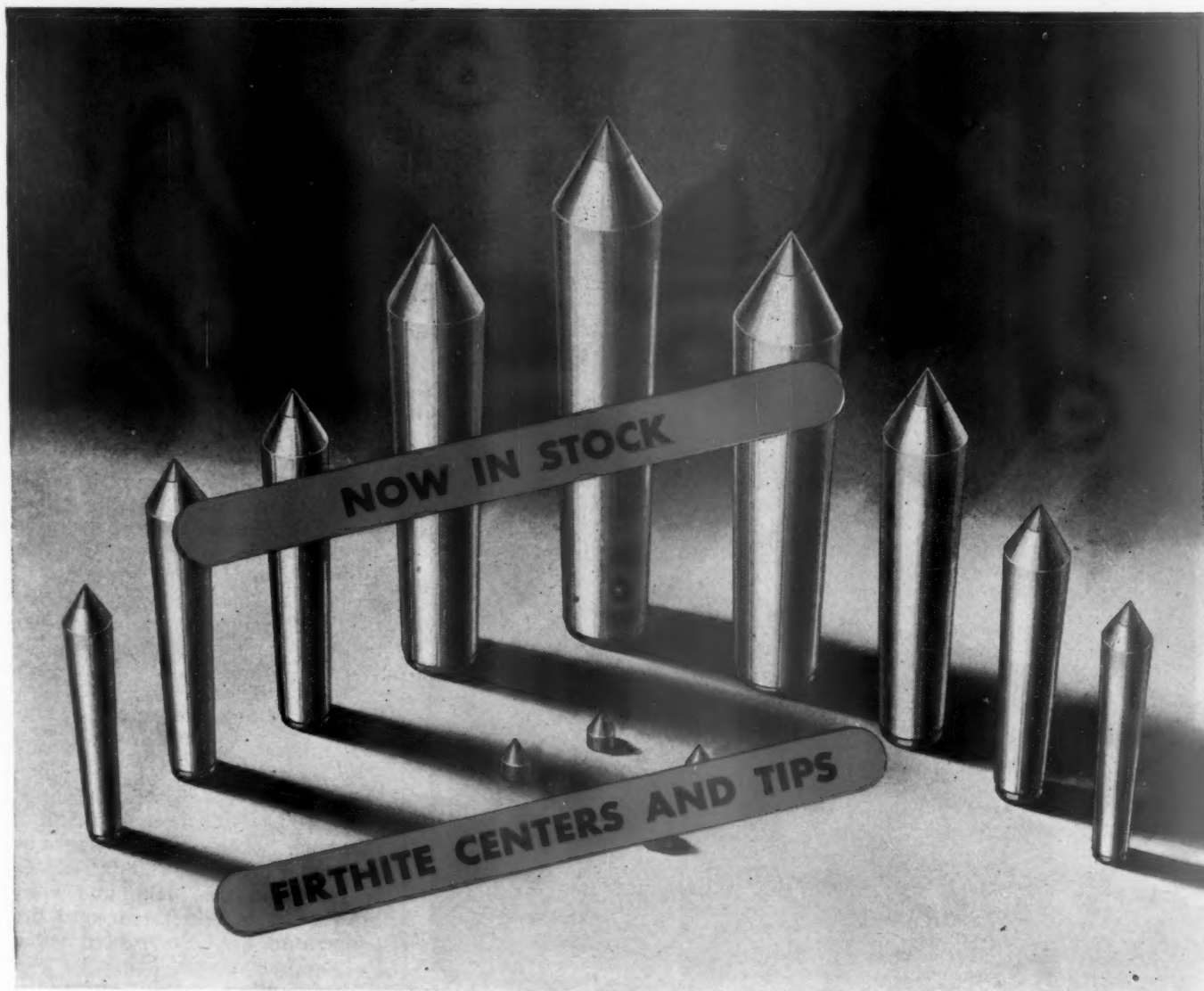
Though the extrusion process is almost exclusively restricted to production with the thermoplastic materials, considerable progress has been made in adapting it to the heat hardening thermosetting materials.

Preforming

Pulp molding, and actual preforming similar to that used in the making of papier-mache products, in which the pulp is impregnated with thermosetting resins, opens the way for the making of parts of large size, such as furniture, cabinets for refrigerators, and things of kindred size. The pulp, incorporating the resin, is formed over a wire screen die, usually by dipping and water extracted by vacuum. The form after removal from the screen is thoroughly dried and molded to final form by a bag-molding process or compression methods. In some processes, the pulp minus resin is preformed, the resin being added after the pulp form is dry.

(Continued on page 326)

**BUY
WAR BONDS**



for longest wear use *Firthite*

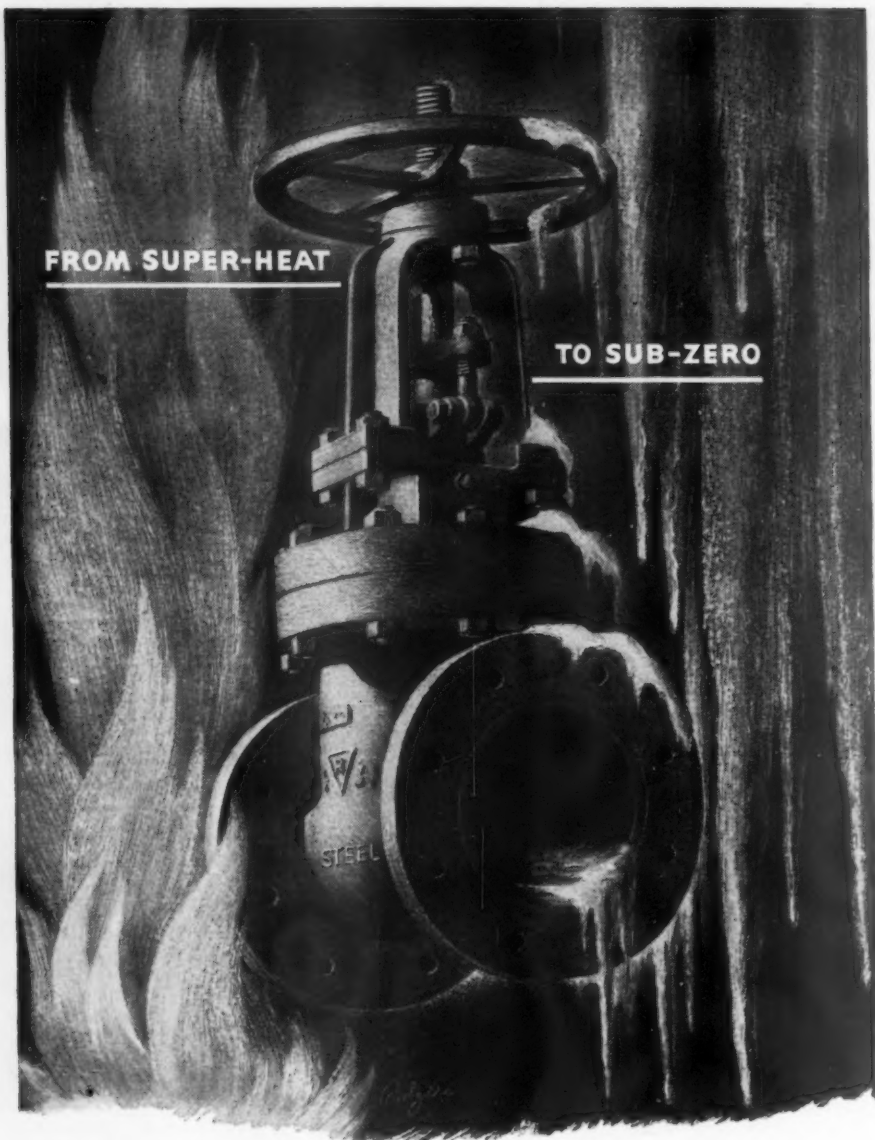
Whether you buy finished centers or carbide tips for making your own, you can now obtain immediate shipments of FIRTHITE from complete stocks. Finished FIRTHITE Centers

are available with three tapers—Morse, Jarno, or Brown and Sharpe. To secure the maximum resistance to wear, or long life, specify **FIRTHITE Grade T-41**—"tops" for centers.



Firth-Sterling
STEEL COMPANY

OFFICES: McKEESPORT, PA. NEW YORK HARTFORD LOS ANGELES CLEVELAND CHICAGO PHILADELPHIA PITTSBURGH DAYTON DETROIT



FROM SUPER-HEAT

TO SUB-ZERO

WHY ARE SOME VALVES MADE OF STEEL?

Reading-Pratt & Cady Answers Question:

Most valves are made of brass or iron. But there are two reasons why some are made of steel. • One reason is temperature. Above 500° Fahrenheit, brass valves go soft and iron ones crack. At sub-zero temperatures, valves of these two metals do not always give satisfactory service. So for use at very high or very low temperatures, Reading-Pratt & Cady Division of ACCO makes valves of steel. • Another reason for using steel is safety. In case of fire, for example, brass and iron valves may melt or crack and release inflammable fluids or gases. But valves made of steel will stand the heat as long as the pipes and tanks. • A full line of steel valves—in addition to those made of iron and bronze—is manufactured by Reading-Pratt & Cady Division. Like all ACCO products, they are essential in peace, vital in war.



In Business for Your Safety

AMERICAN CHAIN & CABLE COMPANY, INC.

BRIDGEPORT, CONNECTICUT • Aircraft Controls, American Chain, American Cable Wire Rope, Campbell Cutting Machines, Ford Chain Blocks, Hazard Wire Rope, Manley Garage Equipment, Maryland Bolts and Nuts, Owen Springs, Page Fence and Wire, Reading Castings, Reading-Pratt & Cady Valves, Wright Hoists, Wilson "Rockwell" Hardness Testers. • In Canada—Dominion Chain Company, Ltd. In England—The Parsons Chain Company, Ltd., and British Wire Products, Ltd.

Molding Plastics

(Continued from page 324)

A new development along this line, a preforming plastic that is claimed to have both strength and formability in a degree never before achieved in a single plastic material, was recently announced by Westinghouse Research Laboratories. It begins as a soup-like mixture of pulp, water and a phenolic resin, the mixture being 99% water. Fine copper gauze with 2300 holes per square inch is fashioned in the form of the product to be made and dipped into this mixture, or the mixture is poured into a tank which contains the form. Water is sucked from the form, the preformed piece is peeled off, dried in a warm oven, and then placed in a heated mold and pressed to its final shape. In the final molding the amount of pressure can be changed to make different varieties of plastic, ranging from a cork-like substance to a dense strong material resembling hardwood.

Deep Drawing

Laminated phenolics are usually used for deep drawing and bending, though this type of production is also possible with thermoplastic and cast-resin sheet materials. The material is preheated and immediately placed in the mold, and after drawing it is held there until the temperature has been reduced below the softening point.

Westinghouse also recently introduced a special laminated phenolic with a minimum draw requirement, ranging from a depth of $1\frac{3}{8}$ " for $\frac{1}{32}$ " of thickness to $1\frac{1}{4}$ " for $\frac{1}{16}$ " of thickness. Drawing is claimed to be accomplished without cracking, wrinkling or delamination, and drawing and shaping of the plastic without a draw ring is said to be feasible. Also, precut thicknesses of molding materials such as Co-Ro-Lite, a thermosetting material with cordage fibre filler, which resembles felt, permit of the deep drawing of thin walled objects such as pans, trays and so on.

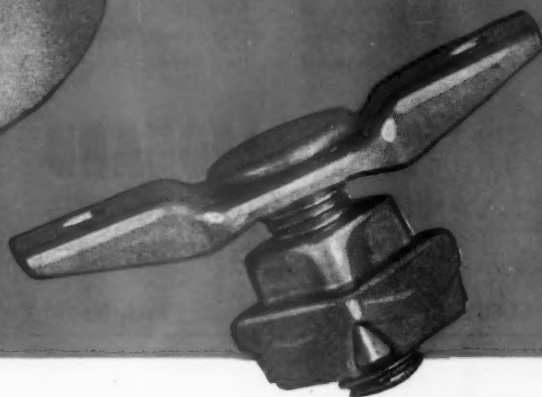
The Blowing Process

Blowing of thermoplastics is another process in plastics production that is of usual interest. A New England Company has perfected a method of combining thermoplastics extrusion and some of the principles of glass blowing, for making bottles in a wide variety of shapes and sizes. The unit cost is reported to be about three times that of glass units.

(Continued on page 328)

NATIONAL finds a way to make fasteners

Fast



This clamping bolt assembly for shell containers presented a real problem to Army Ordnance. Millions were needed quickly. The original design called for welding the wings, but welding was a bottleneck and some of the manufacturers making the caps did not have welding facilities.

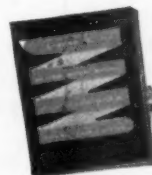
We developed a design which would permit a staking assembly instead of welding... one which would involve the simplest operations for volume production and yet fulfill the requirements of the assembly. This obviated the necessity of securing special equipment which would have meant serious delay.

The assemblies were turned out in several sizes on time, by the millions, because *National* found the way and many companies and individuals co-operated to do their part.

Here's the point—we do a lot more than make bolts, nuts and screws of exceptional quality (principally for aircraft at the present time). We apply our experience and facilities to designing and producing many special parts on which we can save time, man power, materials and money.

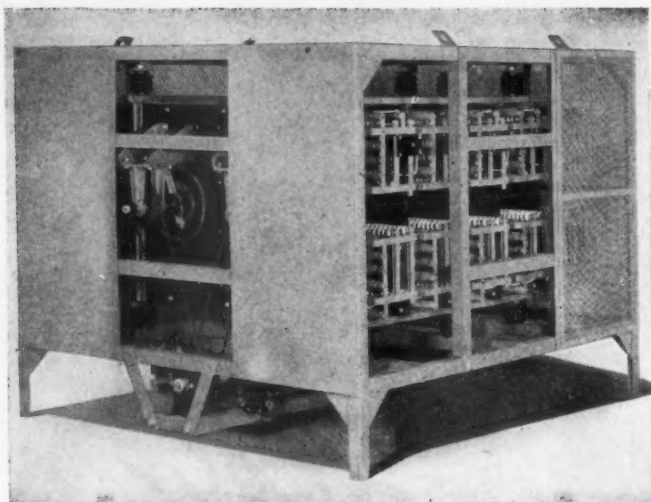
Write for our "Savings" booklet.

Send for copy of this booklet containing 15 brief, diagrammatic stories of important savings on headed and threaded parts. Ask for the "Savings" booklet.



National
HEADED AND THREADED
PRODUCTS

THE NATIONAL SCREW & MFG. CO., CLEVELAND 4, O.



ASSEMBLED RHEOSTATS

This Ward Leonard rheostat, built for production testing of grid-controlled rectifier



Ward Leonard rheostats provide control for the minute current requirements of the laboratory to the heaviest current demands of industry. Send for rheostat bulletins of interest to you.

tubes, consists of five face plates, each composed

of two rheostats. Each rheostat will drop from 0 to 375 volts at any current from 15 to 0.15 amperes. Series connected they drop 3750 volts. Parallel connected they handle currents up to 150 amperes.

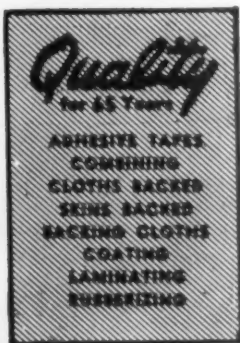
WARD LEONARD

RELAYS • RESISTORS • RHEOSTATS

Electric control (WL) devices since 1892.



WARD LEONARD ELECTRIC COMPANY, 50 South Street, Mount Vernon, New York



CHICAGO, ILL.
H. Rabin, 30 No. LaSalle St.
LOS ANGELES, CAL.
A. B. Boyd Co., 743 E. 14th St.
PETERSBURG, VA.
Wm. A. Bragg, 224 No. Sycamore St.
PORTLAND, ORE.
A. B. Boyd Co., S. E. Union & Morrison
SAN FRANCISCO, CAL.
A. B. Boyd Co., 1236 Howard St.
SEATTLE, WASH.
A. B. Boyd Co., 404 Dexter Ave.
ST. LOUIS, MO.
C. E. Wilkins, 1602 Locust St.
WALLASTON, MASS.
S. B. Scott, 123 Elm St.
CAPE TOWN, S. A.
K. Stein Agency Co., 12 Plain St.

COATING LAMINATING QUICK SERVICE

ADHESIVE and chemical mix coatings expertly applied to paper, cloth, foils and other materials.

Fabrics backed, laminated or combined to your specifications, and special purpose formulas developed in our own Laboratory.

65 years of "Know-How" deliver "Use-Proved" tapes and backings deserving the enthusiastic approval they earn on the production lines.

Just tell us what your problem is and let our Laboratory, backed by their years of specialized experience in synthetics, help you find the perfect solution.

Let Mr. George L. Peters, E.M., Columbia 1911, head of our Engineering Staff, suggest from our formulas those experience indicates as best suited to your particular needs.

Peters Bros.
RUBBER COMPANY, INC.
160 160 JOHN ST., Brooklyn, N.Y.
ESTABLISHED 3 GENERATIONS

Molding Plastics

(Continued from page 326)

Prior to the war the company made literally hundreds of thousands of colored Christmas tree ball ornaments by the process. Inasmuch as the polystyrenes and acetates used in the process can be had in all the colors of the rainbow, the merchandising advantages offered by this development are not difficult to visualize.

Also, the Rohm & Haas Company has developed a new "air forming technique," which is being used for blowing one-piece canopies for warplanes. And a new process for producing plastic bubbles by atmospheric pressure to form "teardrop" enclosures from single sheets of Lucite for warplanes is announced by DuPont. At Swedlow Aeroplastics Corporation, Glendale, Calif., where these enclosures are produced, the Lucite sheets are trimmed to the general outlines of the canopies, and heated to the point of flexibility. Next they are draped upon a vacuum device, air is exhausted, and the plastic is expanded by the pressure of the atmosphere to the contour of the enclosure.

Laminated Plastics

Plastics laminations constitute a mighty big subject in a field of seemingly unlimited potentialities. In the production of laminates both the phenolic and urea thermosetting resins are used as a binder for making laminations of wood veneers, paper, fabric, woven fiberglass, asbestos fabrics and asbestos papers. The laminated sheets, boards, tubes, slabs, rods, blocks, etc. are employed in a multitude of structural uses and for fabricating products. In the production of tubing, impregnated paper or fabric is wound around a mandrel and baked or cured under pressure.

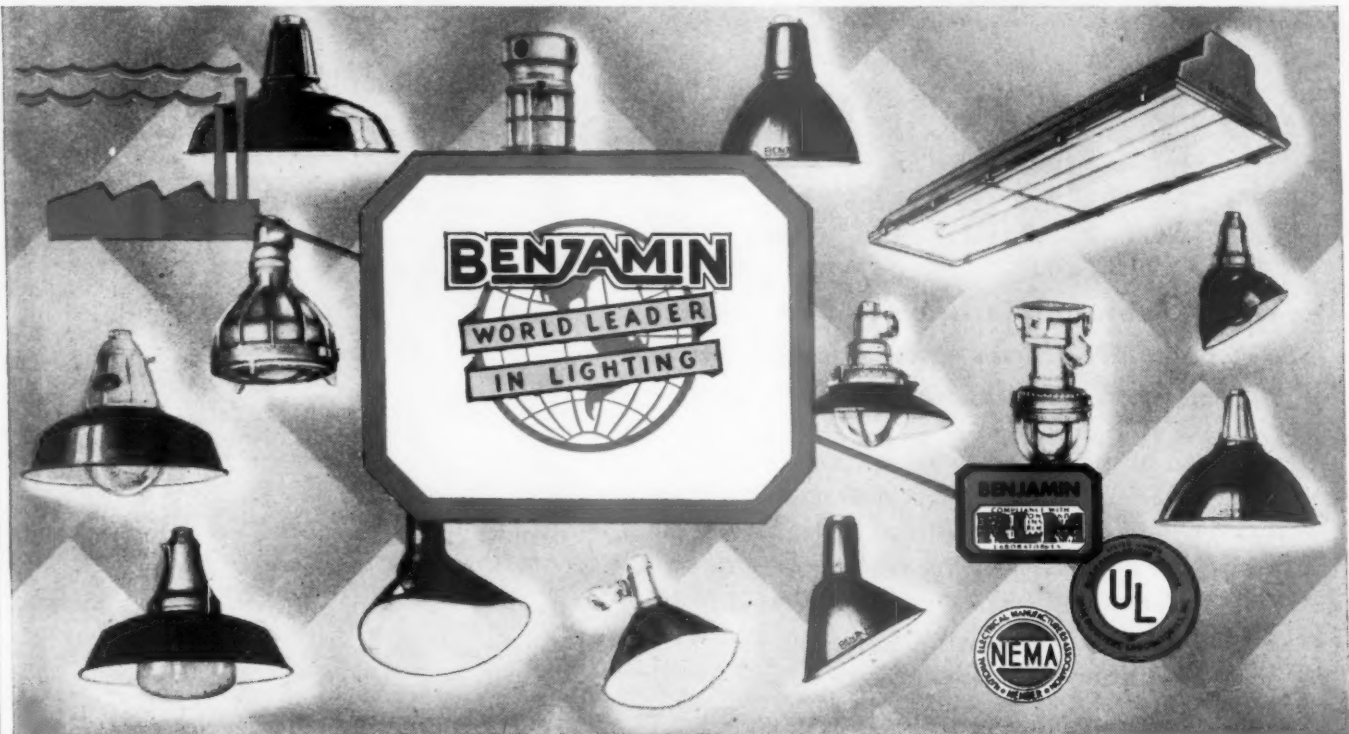
It is also possible to mold simple forms with the impregnated sheets by subjecting them to heat and pressure before the resin has fully cured. The far reaching uses of wood laminations are reflected in the creation of large structural parts for heavy building purposes, ship keels and other installations where formerly heavy timbers were used.

Plastic sheets are also used for making laminated plastic sheets, a recent development being the laminated Lucite-Butacite sheeting developed by DuPont for aircraft enclosures.

The subject of laminates leads to fluid pressure, or bag molding. In

(Continued on page 332)

Make the Benjamin Trademark Your Guide to Better Lighting for Today and Tomorrow



UNLESS your plant requires no re-conversion and has been newly built or completely re-lighted during the last three years according to today's higher standards, you will soon be considering lighting recommendations and the specification of the best possible lighting equipment to meet today's and tomorrow's needs.

Naturally, you will want to specify lighting equipment which assures you the best possible lighting of the seeing tasks and, also, the lowest ultimate cost on your investment in terms of lighting efficiency, equipment life and maintenance expense.

When you make the Benjamin trademark your guide, you are assured of obtaining such equipment. This trademark is your assurance of lighting units that comply with all recognized illumination, electrical and mechanical standards and applicable RLM specifications. It is your assurance of:

—reflectors scientifically designed to insure the proper control and direction of light.

- highest reflection factors and light output to insure obtaining all the light you pay for,
- proper lamp shielding to minimize glare.
- an extra safety factor of durability which assures long fixture life and minimum maintenance and replacement costs; durability which has earned Benjamin units the reputation for being "built like battleships".
- equipment that is guaranteed against defects in material and workmanship.

Without cost or obligation on your part, let us place your name and the names of your associates on our list of those to receive the various Benjamin bulletins and other data to be made available during the next few months. These will be helpful to you in making a study of your lighting and in planning needed improvements. Just write Benjamin Electric Mfg. Co., Dept. Y, Des Plaines, Illinois and ask for Benjamin Re-Lighting Service Data.

Call for a Call
by a Trained
Lighting Specialist



BENJAMIN
TRADE MARK
Lighting Equipment
Distributed Exclusively Through Electrical Wholesalers

NO SPEED LIMIT!

Twin-Fast Screws go in twice as fast because twin parallel threads provide twice the thread pitch of ordinary wood screws.

At every turn of the driver, twice as much thread area enters the material. For example, a #10 screw (conventional or Twin-Fast) with a 2" thread portion has about 30 threads. For a conventional wood screw, 30 threads mean 30 turns of the driver — for Twin-Fast, only 15! Cuts driving time in half! Cuts driving costs in half!

Speeds production! Saves vital man-hours! We'll gladly send you samples and further details. Write for them *today*.

OTHER TWIN-FAST FEATURES

Relieved shank diameter tends to prevent stresses which might cause immediate or eventual splitting or fissures. Method of manufacture assures perfect shank uniformity — perfect fit.

Cylindrical construction (not tapered) increases thread area for tighter seating, greater holding power. Often, fewer and shorter screws may be used.

Single, sharp, centered point where twin threads terminate assures quick starting, self-centering, balanced driving. No eccentric "crawling" — no misalignment!

Twin-Fast Screws come in steel or brass with round, flat, or oval heads — standard sizes and thread count.

**BY ALL MEANS
BUY BONDS!**



The Blake & Johnson Company makes many thousands of different types of fastening devices in all standard metals.

THE BLAKE & JOHNSON COMPANY SINCE 1849
WATERVILLE, CONNECTICUT



ARISTOLOY

AIRCRAFT QUALITY STEELS

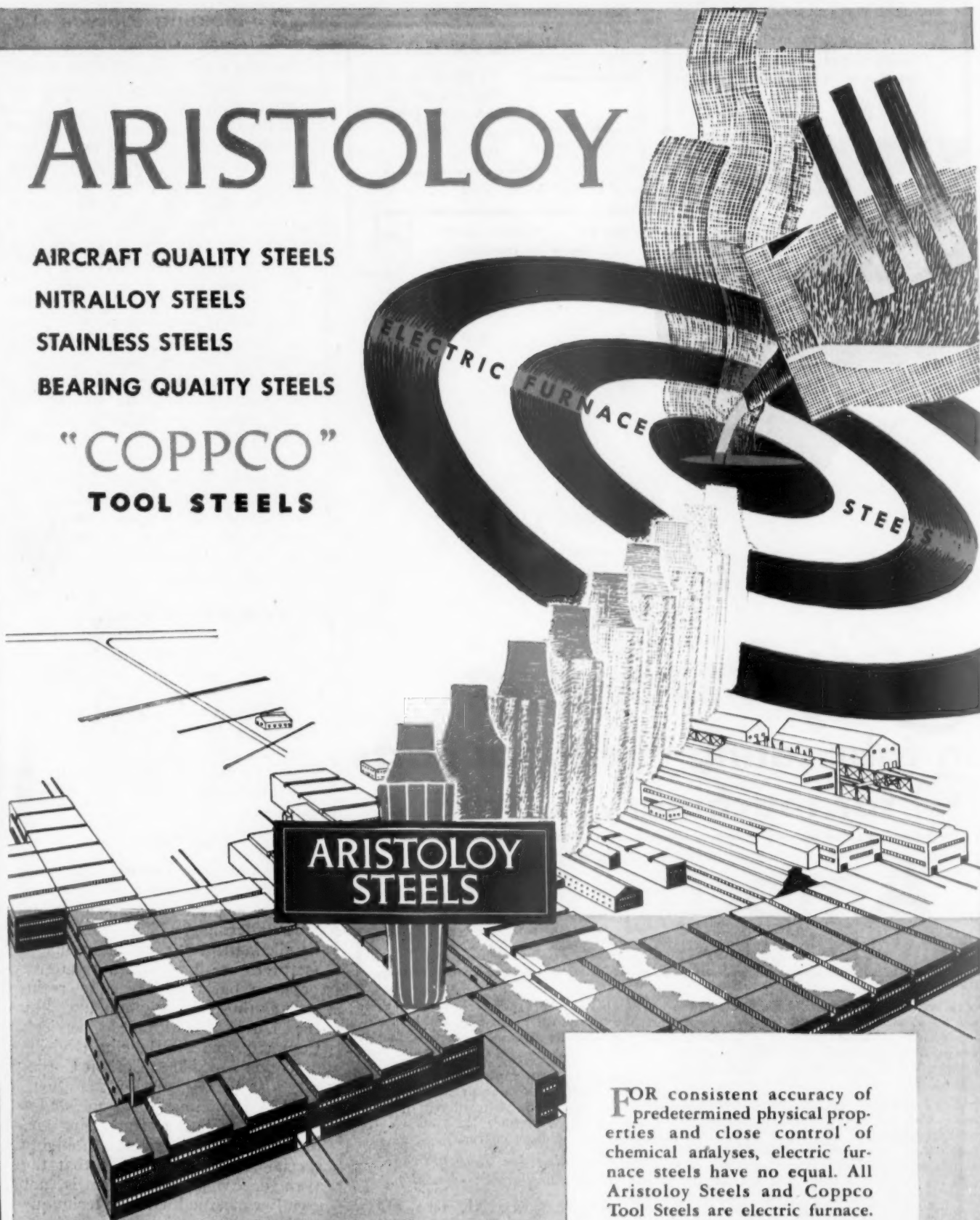
NITRALLOY STEELS

STAINLESS STEELS

BEARING QUALITY STEELS

"COPPCO"

TOOL STEELS

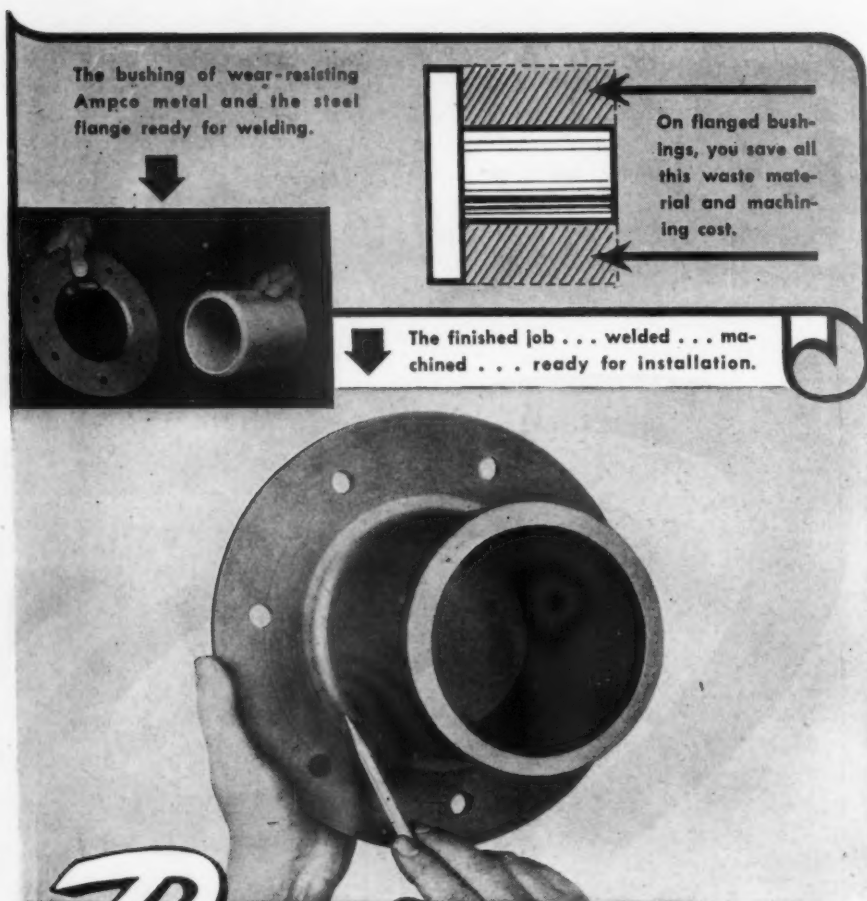


ARISTOLOY
STEELS

FOR consistent accuracy of predetermined physical properties and close control of chemical analyses, electric furnace steels have no equal. All Aristoloy Steels and Coppco Tool Steels are electric furnace.

COPPERWELD STEEL COMPANY • WARREN, OHIO
District Offices In All Principal Cities

Know Your COPPERWELD REPRESENTATIVE WELL



Big saving
in fabricating frictional parts
for machinery . . . with

Ampco-Trode WELDING ELECTRODES

Welding — the fabricating method which has made such tremendous strides in war production — offers you an economical means of fabricating dissimilar metals, building up bearing surfaces on cheaper base metals, etc.

Illustrated above is an example of the tremendous savings that can be made by welding a bushing of Ampco Metal to a steel flange. Ampco-Trode coated aluminum bronze welding electrodes give you weld metal that is comparable in strength, ductility, and bearing qualities with the various grades of Ampco Metal — the superior aluminum bronze alloy. Any

grade of Ampco-Trode, selected for your required physical properties, can be welded to practically all combinations of metals and their alloys.

Perhaps you can apply this modern fabricating method to your product. Investigate — a letter or postcard will place a competent field engineer at your service immediately without charge.

Write today for Ampco-Trode
bulletin 61 and further information.

Ampco Metal, Inc.

Department P-11

Milwaukee 4, Wis.

Ampco Metallurgical Specialties

Ampco Metal — a grade
to meet your requirements.
Ampcoloy (general
industrial bronzes)
Special Copper-base Alloys.



Reg. U.S.
Pat. Off.

Sand Castings . . . Centrifugal Castings . . . Extruded and other Wrought Products . . . Precision-machined Parts
Ampco Non-Sparking Safety Tools.

W-3

Molding Plastics

(Continued from page 328)

this process, layers of resin coated veneer, or preforms from impregnated fibre compositions such as Co-Ro-Lite, are placed on a mold which may be of wood or concrete or even one of the thermosetting plastics. The whole is then placed in a rubber bag which is fully deflated to form a snug fit, and next placed in a retort and subjected to steam or fluid pressure ranging from 75 to 200 pounds per square inch. The heat and pressure further compress the molding material to the form, the bag uniformly distributes the pressure, and the plastic material sets into a homogeneous unit of great strength.

This type of molding permits the development of large shapes with compound curvatures. The curing time varies from several minutes to about two hours. As is evident, the possibilities are endless and make possible the molding of furniture, boat hull, radio and refrigerator cabinets, toys and many other large products in sturdy monolithic construction at very low cost.

Of course, in addition to the laminates, manufacturers may procure for fabricating or machining products and parts, sheets, rods and tubes of cast resins, and of the thermosetting and thermoplastic molding materials. Practically all of the plastics and laminates can be machined and some can be heat formed.

Cold Molding

The practice of cold molding applies to the molding of ceramics, bitumen, plaster, cements, and various resins which can be so handled. In plastics molding, manufacturers use it for making patterns or even parts with casting resins such as those recently announced by the Durez Plastics & Chemicals Company, and the Bakelite Division of Union Carbide & Carbon Corporation.

The designing of molds for machine molding thermosetting and thermoplastic materials is a highly specialized art. It may be that the average layman or buyer is not greatly concerned with the technique of design except from the angle of knowing that the plant designer or the custom designer is intimately acquainted with the "goes" and "no-goes". Nevertheless, the buyer of plastic products or parts should understand the basic requirements

(Continued on page 336)



Do you keep getting
WRONG NUMBERS
on your Production Runs?

Do you get shortages and over-plusses in production from high-speed machines which can't be controlled by their operators because there's no way of keeping count on their runs? All these delays and errors that come from guesstimating *in the dark* can be ended for good *in the light* of "Facts-in-Figures" supplied by Veeder-Root Counting Devices on each machine. These devices are inexpensive and easy to install... can be supplied in types to count in any terms or units required. Find out what Veeder-Root "Countrol" can do to help your work count for more. Write to Veeder-Root Inc., Hartford 2, Conn. In Canada: Veeder-Root of Canada, Ltd., Montreal. In England: Veeder-Root Ltd. (new address on request.)

You'll get nothing but **RIGHT NUMBERS . . .**
with **VEEDER-ROOT COUNTING DEVICES** on your machines



Veeder-Root Large-Figure Counter, for easy reading from a distance. One of scores of types of Veeder-Root Counters for mechanical and electrical operation.

**For
homogeneous
welds of high
tensile strength**



**THE SEYMOUR MANUFACTURING CO., SEYMOUR, CONN.
NON-FERROUS ALLOYS SINCE 1878**



the Birth of the World's Greatest Navy

PEARL HARBOR is a symbol of American bounce. Pearl Harbor December 7, 1941 came as a shock to the nation. Our Pacific fleet, gathered in one harbor, lay helpless under the wings of Japanese treachery.

But from that catastrophe has arisen the mightiest fleet of all history. Sunken, fire-blackened hulks were raised and their weaknesses converted to strength. Pearl Harbor ships, reconditioned in record speed, are mightier than ever. And from the ways of Navy Yards and shipyards all over the United States has come a fleet greater than all other navies of the world combined.

For over half a century Okonite has been a Navy supplier of electrical wires and cables. Okonite research

men, cooperating with Navy engineers, pioneered such recent improvements as the synthetic impervious sheath that eliminates heavy coverings of lead, glass fibre insulation that resists heat, flameproof synthetic insulations that replaced rubber, "unilay" assembly of conductors that prevented breakage of copper in flexible cables and Okoloy corrosion-resistant coatings for conductors.

We are justifiably proud of our many contributions that have improved the distribution of electrical power in the ships of our Navy. These same improvements have been incorporated in other cable designs used for power and lighting applications in many other industries. The Okonite Company, Passaic, New Jersey.



OKONITE insulated wires and cables



3833

SAFETY

WITH

Hackmaster

Reg. U. S. Pat. Off.

UNBREAKABLE HAND BLADE



Molybdenum High Speed Steel

SAFETY

Hazards and accidents of sawing are eliminated by the use of these Safety Hand Blades. Inasmuch as these are unbreakable blades they will withstand hard usage, even misuse, without shattering. Sharp twists and kinks, which are the main reason for saw breakage, are absorbed without damaging these blades.

THE END OF HACK-SAW TROUBLES

Here's the blade that can take the toughest twist . . . and come out straight and unbroken, good as ever . . . good for many more hours of smooth, fast cutting. For the tooth-edge alone is hardened, leaving the body of the blade tough and flexible, fit to stand the severest strain. So next time you need hack saws, order this abuse-proof HACK-MASTER.

Our Distributors
Everywhere Stock Them

"LENOX"

American Saw & Mfg. Co.

Springfield, Mass.

Molding Plastics

(Continued from page 332)

of design, for upon adherence to these requirements hangs the assurance of satisfactorily molded products, and the best unit price. Design may determine whether or not a part can be molded, the kind of molding material that can be used, and costs. There are many things to consider such as inserts, mold shrinkage, dimensional stability, tolerances, wall thicknesses, holes and undercuts, the use of ribs, bosses and fillets, mold draft, threading, arrises, compound curves, and—by no means of minor importance—whether or not the design permits ready ejection from the mold.

Several of the bulletins and booklets that are listed in the "Know How" section of PURCHASING Magazine, on pages 10, 12, 14, and 16 of the October issue and this November issue, give detailed information on mold design. In fact, some 25 manufacturers' and molders' booklets and bulletins are listed in the October issue and a like number in this issue. These publications are the nucleus of a library on plastics that the Purchasing Agent will find invaluable.

Again, too much emphasis cannot be placed upon the importance of consulting with plastics engineers who have experience and "know how" to back up the advisory service available to prospective plastics users.

1 1 1

Efficient Forms

(Continued from page 108)

they will have countless uses and bring about entirely new production techniques in peacetime. They will be the source of new responsibilities and new opportunities for men in purchasing, he believes.

Of especial interest, is a permanent requisition form 8½" x 11" developed by Mr. Hillenbrand. This is used in requisitioning all materials except steel for special contracts, which is excepted because previously steel has been for contemplated rather than actual production.

This form gives a complete history of the purchases of the specific material or item covered, with space for recapitulating yearly purchases

(Continued on page 338)



RIEDEL WORK GLOVES

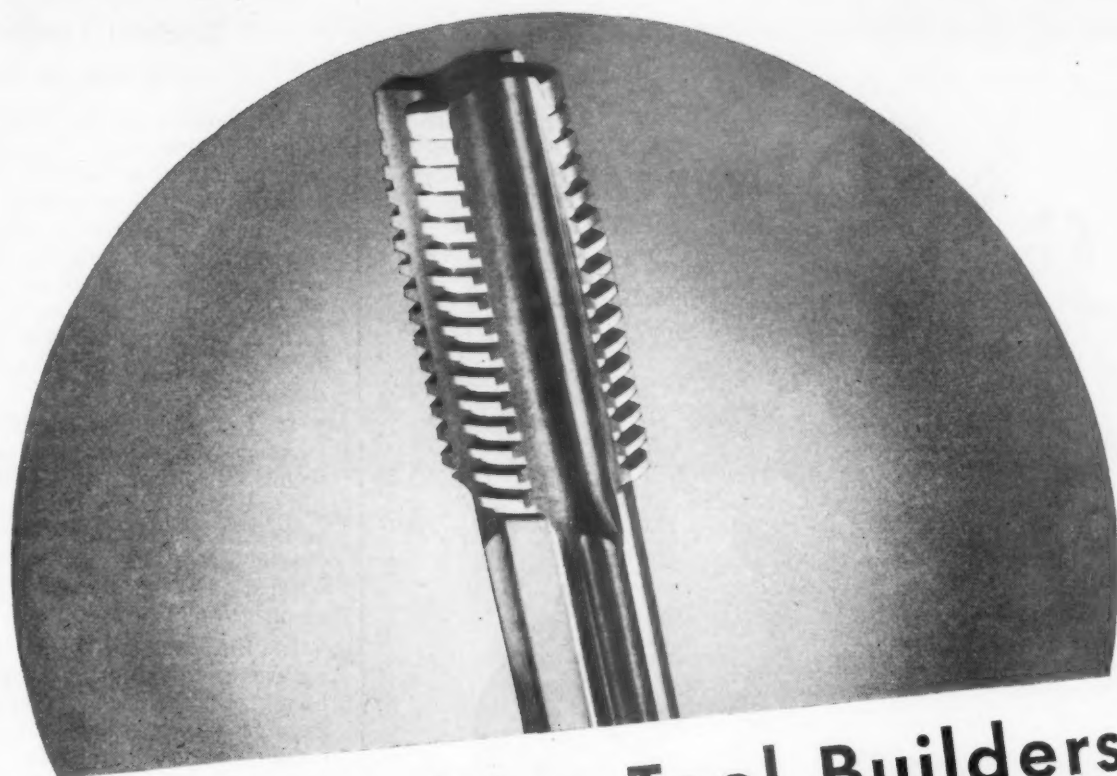
These strong, protective work gloves are the product of one of America's largest textile mills. They are Riegel-controlled—in one plant—from raw cotton to finished glove. This single close supervision of every detail results in unexcelled quality—durability—economy.

*"The Right Glove
For Every Job"*



**RIEDEL TEXTILE
CORPORATION**

342 Madison Ave., New York 17, N. Y.



Why Machine Tool Builders

...Rely On Besly Taps

Since the success of a machine tool literally "hangs by a thread," only the finest, precision ground taps are acceptable. That's why a growing percentage of all taps purchased by machine tool makers are Besly.

The unfailing performance of Besly Taps in war production makes Besly the logical source of taps for fast, economical threading of your V-Day products.

NEW BESLY TAP MANUAL NOW READY

Contains vital information on proper tapping procedures. Tables listing various classes of fits are included. Tap drill sizes and tapped hole sizes are shown in detail. An interesting series of charts, diagrams, and information on proper tap grinding and sharpening is also added. Send for your copy today.



CHARLES H. BESLY AND COMPANY
118 North Clinton Street
Chicago 6, Illinois
Factory: Beloit, Wisconsin

BESLY

**BESLY TAPS • BESLY TITAN ABRASIVE WHEELS
BESLY GRINDERS AND ACCESSORIES**



WHY TAKE LIP

from your boss because your drawings don't reproduce sharply and clearly?

TAKE A TIP

from draftsmen who have been through the mill — use Arkwright Tracing Cloth!



IT'S A PIP!

For high transparency that makes every detail on a blueprint stand out like a light — Arkwright Tracing Cloth just can't be beat. Try it. Arkwright Finishing Co., Providence, R. I.



Sold by leading drawing material dealers everywhere



Arkwright

TRACING CLOTHS

AMERICA'S STANDARD FOR OVER 20 YEARS

Efficient Forms

(Continued from page 336)

at the bottom of the reverse side. This form generally covers a three year period. It immediately supplies information on quantities, prices, and vendors for a given period without searching through files and purchase orders. One of its valuable benefits is that it enables one to determine at a glance whether material is being over-ordered or under-ordered.

It is possibly best described as a master requisition and material record. It originates in the Planning or Record Department, which works in close harmony with the Production Department, and is forwarded to the Purchasing Department.

In the material ordering procedure, each item or material that is bought month in and month out is assigned an item number, this being tantamount to a requisition number. The form carries this item number, identifies the item by name, and shows the specifications therefor. All requests for that particular item are entered directly on the card, instead of making out a special requisition form. Upon receipt of the card from Planning, the Purchasing Department makes out a purchase order for the last entry and the form is returned to the Planning Department with its copy of the purchase order. This department also maintains a record of materials used, and the data for specific items is posted monthly on the permanent requisition form. Thus the record is complete on each item, for the form also shows the amount ordered, the amount available, vendors, prices, and cost data.

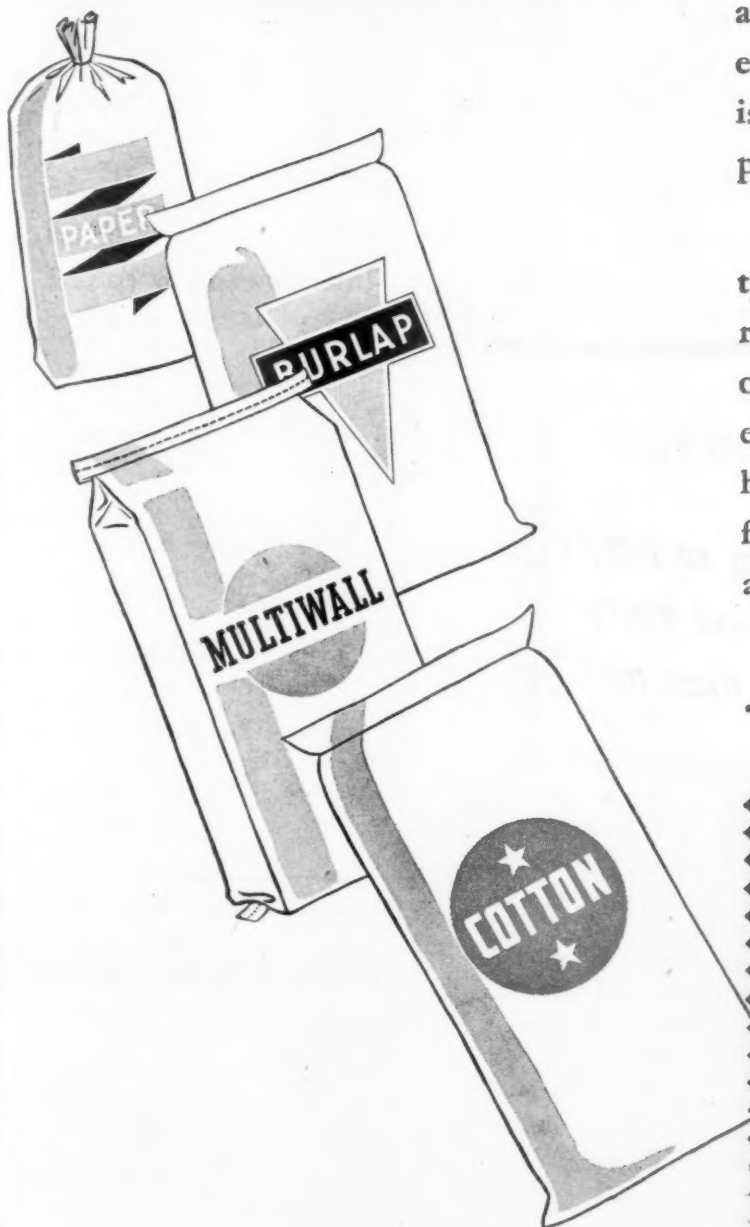
The form is of course being used for many of the new materials and parts that are being used in the making of war-products, and which are subject to repeat buying. Mr. Hillenbrand feels that this complete record is invaluable, for it not only presents the basic data that may be required at some future time, but gives ready reference to other files and records where more detailed data may be available.

PURCHASING AGENT, proven record, capable taking complete charge. Thoroughly diversified experience metal manufacturing and electronic fields. Employed at present. Seeks postwar opportunity, preferably in Metropolitan New York or New Jersey area but will consider suitable out of town position. Write Box #961, PURCHASING, 205 East 42nd Street, New York 17, N. Y.



Whatever's the **BEST BAG FOR YOUR USE**

...we make it!



WHEN you buy your bags from Bemis, among the important advantages you enjoy is this: You can buy whatever type is best for your particular use—cotton, paper, multiwall, burlap or waterproof.

Bemis is a leading producer of *all* types of bags and consequently has no reason to high-pressure you toward any one type. We have no favorites. If our experienced packaging specialists can help you to determine which is the best for your use, you may be sure that their analysis and advice will be unbiased.

Whatever's the *best bag for your use* ... we make it.

BEMIS BAGS



BEMIS BRO. BAG CO.

OFFICES • Baltimore • Boston • Brooklyn • Buffalo • Charlotte
Chicago • Denver • Detroit • East Pepperell • Houston • Indianapolis
Kansas City • Los Angeles • Louisville • Memphis • Minneapolis
Mobile • New Orleans • New York City • Norfolk • Oklahoma City
Omaha • Peoria • St. Helens, Ore. • Salina • Salt Lake City • San Francisco
Seattle • Wichita • Wilmington, Calif.

BETTER BAGS SINCE 1858



East Pepperell, Mass.

Protect INSIDE AND OUTSIDE
THREADS, CUTTER TEETH,
FINISHED CYLINDRICAL SURFACES with
Spiral Wound Paper Tubes!



Guard against damage in intra-plant handling or during shipment; save time and work in packing operations. Tubes made to your requirements in diameters from $\frac{3}{8}$ " to 6"—any length—from kraft, chipboard, special compositions; available waxed or plain. Write for complete information; get details, too, on our other lines of paper tubes and cans, gaskets, die-cut paper products.



PIERCE PAPER PRODUCTS CO.
2728-D AUBURN ST., ROCKFORD, ILLINOIS

Coil Spring Says:



*"I'm so happy
'cause every-
body likes me!"*

**EXTENSION * TORSION
FLATS * COMPRESSION
WIRE FORMS**

We've built our business on satisfying our customers. We give good service, first quality products and meet all specifications exactly! Repeat orders and increased business are our evidence we are succeeding in our aims. We can help you with your spring problems—get in touch with us NOW!

THE U.S. STEEL WIRE SPRING CO.

7800 FINNEY AVE. • MICHIGAN 6318 • CLEVELAND

To Pay or Not to Pay

(Continued from page 81)

in interpretation of contract provisions or legal application of less than one-450th of one per cent. A ten-cent discrepancy in Navy accounts was found and adjusted in October of 1942. Since then the Division's books always have balanced.

By examining all payments for possible adjustment, the Division has collected more than \$479,000,000 in 1944 through price reductions under contracts and renegotiations. An additional \$66,000,000 has been recovered by adjustment of contract payments and freight and passenger payments.

At the present time the Bureau of Supplies and Accounts is collecting more than \$5,000,000 a day, including price reductions, renegotiations, contingent fees, advances to contractors, War Department advances, rentals, contract payment adjustments, royalties and freight and passenger adjustments.

1 1 1

Interested in Surplus?

(Continued from page 101)

manufacturer, and "N" is the first letter in the word new. 6-R-U would represent a textile and wearing apparel retailer interested in used items, as Division No. 6 is Textiles and Wearing Apparel, "R" is the first letter in the word retailer, and "U" is the first letter in the word used. 8-W-S would represent paper and office supplies wholesaler interested in salvage material, because division No. 8 is the Paper and Office Supply Division, "W" is the first letter in the word wholesaler, and "S" is the first letter in the word salvage.

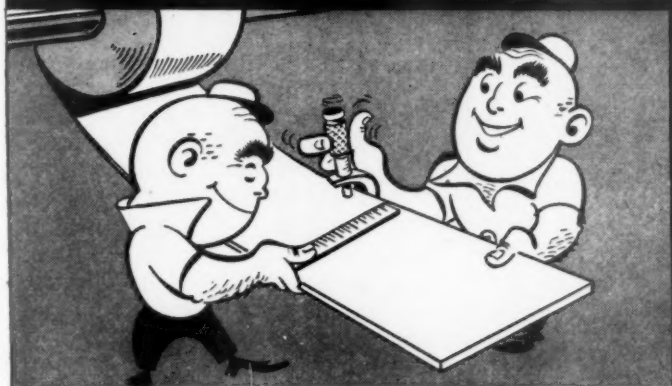
The cards are then filed (1) in

(Continued on page 342)

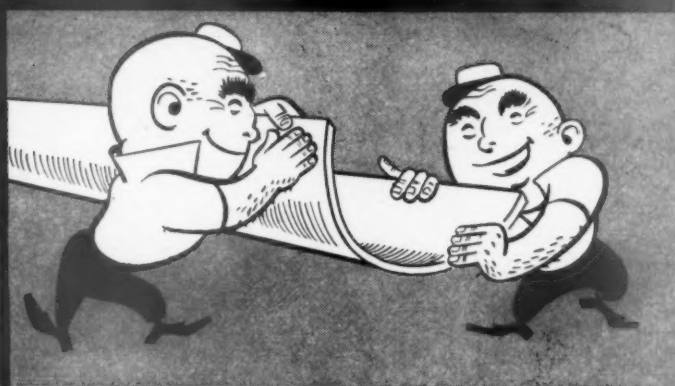
BUYER—AUTO ACCESSORIES

Experienced man to head buying unit for large group of retail stores for nationally known company. Applicant must know the market and be able to expedite merchandise purchased. In reply state fully experience, age, salary expected. Box #960, PURCHASING, 205 East 42nd Street, New York 17, N. Y.

NO SECRET ABOUT BUNDYWELD



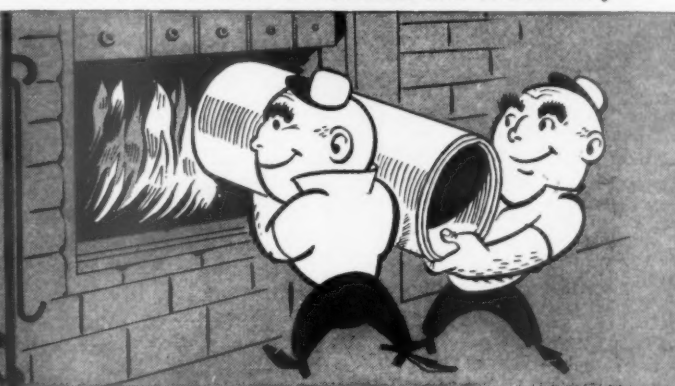
1 Bundyweld Steel Tubing is made by a process entirely different from that used in the making of any other tubing. A single strip —



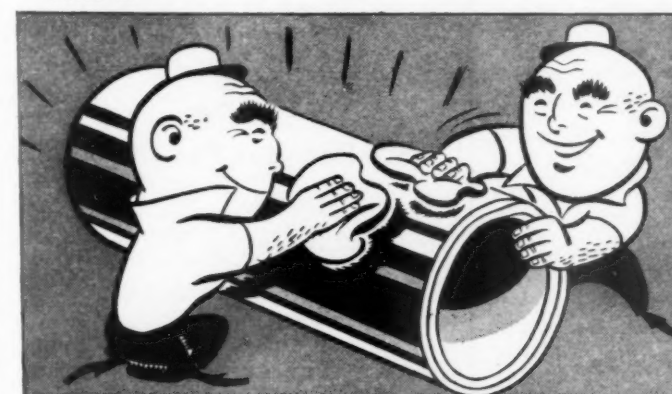
2 — of copper-coated S.A.E. 1010 steel is *continuously* rolled twice around *laterally* into tubular form. Walls of uniform thickness and concentricity —



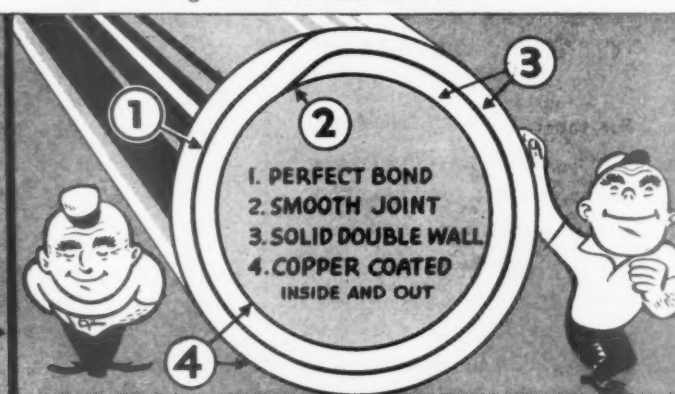
3 — are assured by the use of close tolerance cold rolled strip. This double rolled strip in tubular form is —



4 — next passed through a brazing furnace where it is brazed and cooled in a reducing atmosphere. After brazing the tube has become —



5 — a **SOLID** double wall steel tube completely copper brazed throughout 360° of wall contact, copper coated inside and out, free from scale and closely held to dimensions. It is —



6 — furnished hard or annealed in a wide range of standard diameters and gauges up to $\frac{5}{8}$ " O.D. Special sizes, cold drawn as desired. Also furnished in Monel.

BUNDY TUBING

★ ★



★ ★

BUNDY TUBING DISTRIBUTORS AND REPRESENTATIVES:

Pacific Metals Company, Ltd.
3100 19th Street
San Francisco 10, California

Standard Tube Sales Corp.
1 Admiral Avenue
Maspeth, New York City, N. Y.

Lapham-Hickey Company
3333 W. 47th Place
Chicago 32, Illinois

Rutan & Company
112 South 16th Street
Philadelphia 2, Pennsylvania

Eagle Metals Company
3628 East Marginal Way
Seattle 4, Washington



Peas

Give You the "General" Idea



GENERAL CLEATED CORRUGATED CONTAINER

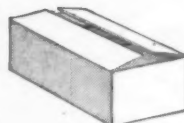
For the shipment of refrigerators, washing machines, radios, stoves, furniture, and similar products. Cleated construction provides rigid support and ample protection. Panels provide space for advertising message. Shipped knocked down, they're easy to store and save valuable space. Simple to assemble for shipment.

NEATLY nested within their protective pods ... and how well they illustrate our "Part of the Product" story—the container and the product, perfectly paired, are coming off nature's production line together.

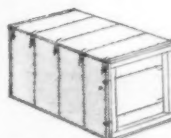
And so, your product and the container can also come off the production line together. It's GENERAL's "Part of the Product" Plan. It eliminates wasteful handling; saves space; reduces costly man-hours and speeds production.

GENERAL Engineered Shipping Containers are a far cry from just boxes or crates. They are designed and engineered for YOUR PRODUCTS. Minor changes in product design, suggested by GENERAL Engineers, have frequently meant better, more compact containers—substantial savings ... a net annual saving of FORTY-SEVEN THOUSAND DOLLARS to one manufacturer.

GENERAL Engineers are experienced in designing containers for practically every type of product. Let us help solve your present and postwar packing problems. Learn of GENERAL's "Part of the Product" Plan. Write today for complete information.



General Corrugated Box



General All-Bound Box



Send for your copy of the new issue of "The General Box."

Invested in Surplus?

(Continued from page 340)

accordance with commodity (as many cards are made as commodities in which the firm expresses interest); (2) inter-filed in accordance with the State location of the firm; (3) interfiled in accordance with the condition of the merchandise in which the firm is interested; and (4) inter-filed in accordance with alphabetical sequence.

A further feature of the system of weeding out buyers who are not qualified is a series of letters which, in effect, answers queries from prospective buyers who are not authorized to buy.

One letter explains to direct consumers why they are not permitted to make purchases of the surpluses from the Government; another is in answer to requests of organizations (certain of which are permitted under the law to make purchases direct), and explains that they must make specific requests naming the commodity which they wish to buy. Such organizations are not placed on the general mailing lists.

Still another letter is designed to answer requests of persons who wish to go into business. Such requests are answered by pointing out that the applicant should first establish the business, and that he would then be a part of the regular trade pattern, and thus eligible to buy.

1 1 1

Six Reasons For Surplus

(Continued from page 88)

properly authorized requisitions or shipping orders. At the same time they must maintain minimum stocks and be constantly on the alert to detect surplus or slow-moving stocks. They must provide "a place for everything and everything in its place", and this includes certain perishable items of rubber, etc., that require controlled temperatures and humidities.

We found it necessary to segregate all surplus and obsolete material in stores from actually used material, and to segregate company-owned from government-owned material. This segregation has been immensely beneficial in simplifying control, accounting and handling of the different categories. It also facilitates the sale of surplus, en-

(Continued on page 344)

ENGINEERED SHIPPING CONTAINERS

General BOX COMPANY

GENERAL OFFICES: 48 West Illinois St., Chicago, Ill.

DISTRICT OFFICES AND PLANTS: Brooklyn, Cincinnati, Detroit, East St. Louis, Kansas City, Louisville, Milwaukee, New Orleans, Sheboygan, Winchendon.

Continental Box Company, Inc.,
Hickory, Dallas

*this may
help you*



if you face Problems in Rubber

Condensed and to the point, this 8½x11, 4-page report contains a wide scope of information on mechanical molded and extruded rubber and synthetic rubber, including data on the comparative bonding qualities of those materials in relation to various metals, wood, fibre, celotex, and glass. Although this report was compiled primarily for product designers, anyone interested in the uses and applications of rubber and synthetic rubber may find helpful information. A copy will be sent to you upon request to

* * The Ohio Rubber Company, Willoughby, Ohio. * *

"ORCO-OPERATION"

THE OHIO RUBBER COMPANY • WILLOUGHBY, OHIO

BRANCHES: DETROIT • NEW YORK • CHICAGO • INDIANAPOLIS • WASHINGTON • CLEVELAND

THERE'LL BE NO "HOT FOOT" In These Trucks



Sprayed WITH 3-M INSULATOR


● Drivers of cab-over-engine trucks are protected from engine heat by spraying the inner side of engine enclosures with 3-M Insulator. Speedily applied with spray gun, this insulating material conforms to any irregular surface, remains securely in place and stays flexible and resilient.

This may suggest to you a place where spraying 3-M Insulator will save production time and solve the problem of insulating hard-to-reach areas where other means prove too costly.

Our sales engineers will be glad to help with similar insulating problems.



There are over 700 3-M Adhesives and Coatings made for Adhering, Sealing, Coating, Insulating, Impregnating and Sound Deadening.



MINNESOTA MINING AND MANUFACTURING CO.
GENERAL OFFICES: SAINT PAUL 1, MINN.
ADHESIVE AND COATINGS DIVISION
DETROIT 1, MICHIGAN

P1144A

Minnesota Mining & Manufacturing Company
411 Piquette Avenue, Detroit 2, Michigan

☐ Send complete information.
☐ Have Sales Engineer call.

Name _____
Address _____
City _____ Zone _____ State _____

— BUY MORE WAR BONDS! —

Six Reasons For Surplus

(Continued from page 342)

abling prospective buyers actually to see the material earmarked for disposition.

One of the most profitable functions in Stores Control is "packaged distribution", the purpose of which is to anticipate the requirements of hardware for each production shop on both day and night shifts. Hardware requirements are compiled from blueprints and checked by actual shop practice, and are listed on assembly-bill-of-material cards. Thus we determine in advance the exact quantity and type of hardware required for each station, permitting the worker to take, from racks along the production line, a complete kit of all the hardware he will require during the shift.

The kit contains the individual items of hardware in separate cellophane envelopes, labelled to indicate the contents. The quantity in each envelope is determined by the number of planes that will flow past the worker during his shift. The cellophane bags will even contain chilled rivets when required.

Packaged distribution has definitely increased our production by saving the worker ten to fifteen trips daily "going for hardware" to bin cribs or stores service windows. It has also reduced the waste of hardware that accompanied the use of open roto-bins. In reducing consumption, it has also eliminated unnecessary surplus, for when waste is not controlled it is constantly necessary to replenish shortages and the tendency is to requisition more than is actually required. With a thorough knowledge of requirements, we can better control inventory and stock records.

We have a highly organized Reclamation Department as a division of the Salvage Analysis Department, reporting to the Works Manager. Its chief function is to recover bench mixtures of hardware and rivets and the valuable material in floor sweepings. We have developed our own scientific sorting devices, including a conveyor running under a shuttle magnetic separator which sorts the ferrous material from the dural or aluminum parts. Then there is the "bird cage"—screens of varied measures revolving electrically to sort hardware by sizes, and various rotating rivet hoppers which sort rivets by head size and lengths.

The Reclamation Department now returns to production about 10,000 pounds of material monthly. We treat this department similar to an outside vendor, making certain that proper records accompany each delivery of recovered material to stores. This is important because unless reclaimed material is properly accounted for, unnecessary surpluses will naturally accumulate. Bear in mind that we have already provided for necessary production requirements, either on hand or on order. The accumulation of reclaimed usable material enables us to refrain from purchasing an equivalent quantity, or to cancel open commitments.

Salvage Analysis

The Salvage Analysis Department has the responsibility of determining final disposition of any item declared surplus or obsolete by Material Control. By ingenuity and investigation, they are frequently able to reactivate such items on another assembly in the plane, or to rework the item, thus avoiding

(Continued on page 346)



WASMER Tru-Fit

**NUTS & BOLTS
CAP SCREWS
SET SCREWS**

WASMER BOLT & SCREW CORP.

13600 ATHENS AVE. CLEVELAND, O.



RECONVERSION to peacetime production will require much re-designing, replacement, and repair work. If it's Bronze Castings or Bearings you need—we're ready. Whether your blueprints call for giant castings or pygmy parts—in the rough or precision-machined—we can make them. Our experimental foundry and modern laboratories stand by to work with you on the solution of your metallurgical or mechanical problems.

**N.B.M.
BRONZE PARTS**



**NATIONAL BEARING
METALS CORPORATION**

ST. LOUIS • NEW YORK



PLANTS IN: ST. LOUIS, MO. • PITTSBURGH, PA. • MEADVILLE, PA. • JERSEY CITY, N. J. • PORTSMOUTH, VA. • ST. PAUL, MINN. • CHICAGO, ILL.

The POLAN BORESCOPE

for
VISUAL
INSPECTION
of
INTERNAL
SURFACES



Unretouched
photo showing
crack in gun
barrel.

For work in which the inspection of internal surfaces is a factor, Polan Borescopes give detailed, minute inspection.

Requiring no special operator training, Polan Borescopes are practical in usage. Designed for inspection of gun bores, bored engine shafts, cylinders, etc., with absence of eye fatigue. Efficient inspection of bore diameters ranging from 20mm to 9 inches; lengths up to 30 feet.



AWARDED TO
ZENITH OPTICAL CO.
a unit of . . .

Polan
Industries
HUNTINGTON 19 • WEST VA.

Write today for
your copy of
Borescope Bulletin No. 509.

Six Reasons For Surplus

(Continued from page 344)

the loss we might sustain in selling it below cost or as scrap.

Surplus and obsoleted items are submitted weekly to the Salvage Disposal Board, comprising representatives from Procurement, Engineering, Production, etc., who are thoroughly familiar with production requirements and the utility of each part. This department makes a valuable contribution toward the elimination of surplus by reinstating many of these items into active use.

Surplus and Scrap Sales

In November, 1942, we anticipated the need for vigorous promotion of the sale of surplus materials in the open market. The Surplus Sales Department receives its information concerning such items from lists prepared by Material Control and screened through the Salvage Analysis and Disposal Board. When it is indicated that there is no possibility of utilizing the item, Surplus Sales proceeds to dispose of it for the best price obtainable, and if there is no market for the item, it is turned over to the Scrap Sales Department for sale at scrap value.

During the past two years the Surplus Sales Department has developed many thousands of prospective customers, resulting in sales in excess of five million dollars. This has been accomplished through the medium of carefully prepared catalogues and special lists, with an average circulation of 6,000 copies. The catalogues are classified by type of commodities, e.g., separate catalogues for tools, hardware, aluminum, and steel. They contain commercial equivalents of aircraft specifications, with numerous drawings and information completely describing the material offered. The items are priced at current market. The Surplus Sales Department is in a position to advise prospective customers promptly and accurately as to quantities available for sale, to meet competitive prices, and to handle orders efficiently, frequently shipping the order on the same day as received.

Metals Reserve Plan

This article would not be complete without mention of the excellent job being done to transfer surplus materials from war plants for use by other consumers. We

refer to the Metals Reserve Plan as it affects the aircraft industry, whereby the aircraft manufacturer reports surpluses to Wright Field, where they are reported in turn to the Metals Reserve Corporation, a subsidiary of RFC. Metals Reserve circularizes information on available surplus to recognized warehouses in each district and forwards purchase orders from these warehouses to the owner of the surplus.

This plan has been very beneficial to Republic in that it has helped us to move a considerable amount of our government-owned surplus materials on a transfer of accountability basis. We take pride in the fact that our own Procurement Control Manager, Mr. R. H. McMann, has been loaned to the Aircraft War Production Council to facilitate the liquidation of surpluses in aircraft plants under the Metals Reserve Plan.

1 1 1

Stick 'Em Up

(Continued from page 90)

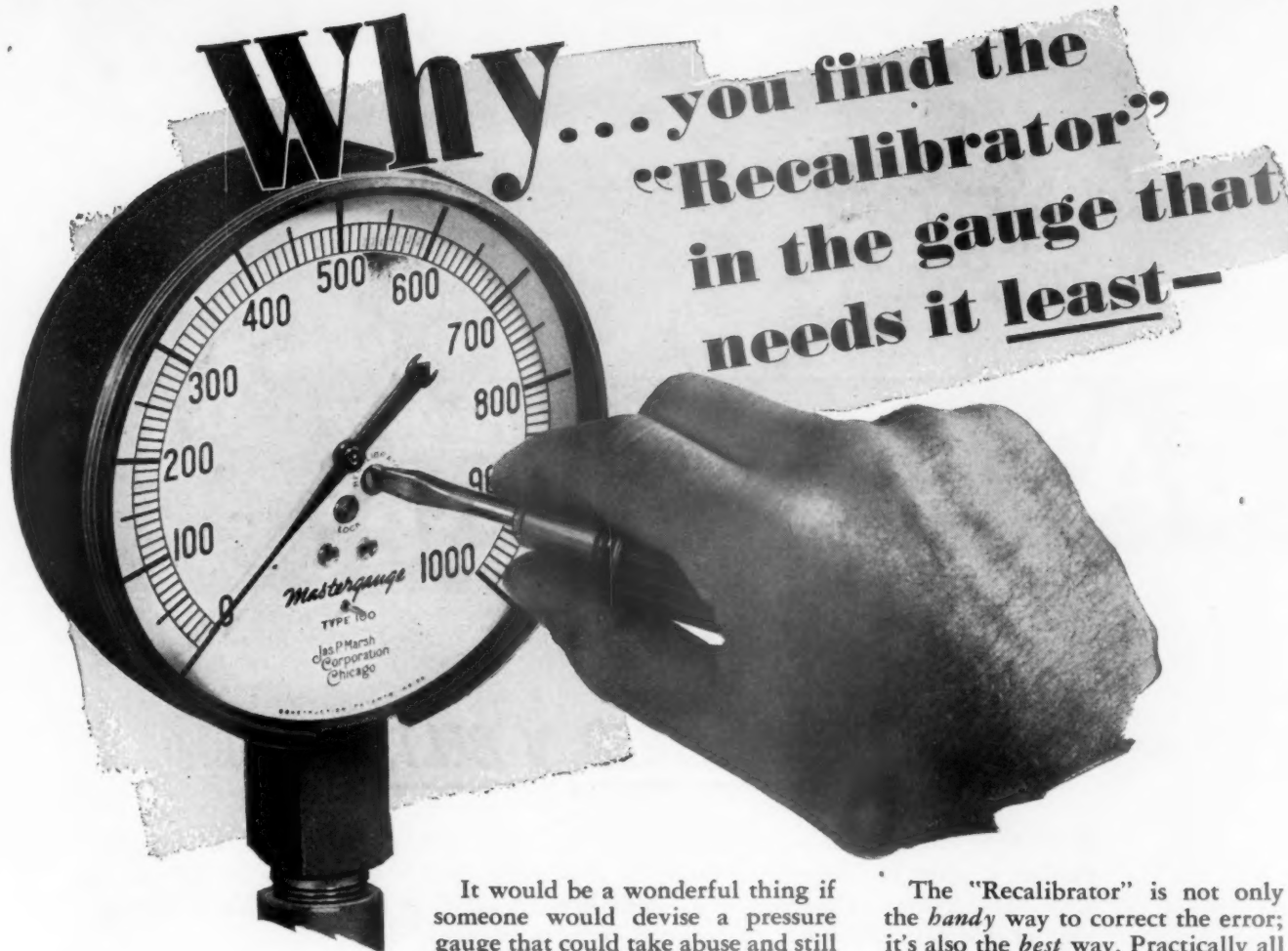
If we buy from somebody who just makes a price we aren't good Purchasing Agents. We are simply cutting the ground out from under our own feet; if the guy busts, we must do the weary work over again on somebody else and maybe bust him. Constructive cooperation in buying is the real McCoy.

We are hag-ridden by a lot of politicians and so-called economists. Very noisy, but mostly flatulence, like a Bronx Cheer. Like Kipling's Bandarlog, they shout to us how great and wise they are. Business ain't infallible; sometimes it is very crude. But in the long run it is business that has put this country in position to shell hell out of the Hun. If it hadn't been for business we would still be fiddling around with blue-prints for unbuilt shootin' irons. But business delivered the goods; Pistol-packin' Mamma could go to town.

Dilettante Diplomacy

We think we're hell on wheels, but a lot of us still have to grow up. We have raked the universe to find the things we need to carry this country through an emergency. When the Hadean gridiron is working three shifts broiling the wriggling Hitlers and Hirohitos, where is our bunch of seasoned traders to

(Continued on page 350)



Yes,

"THE STANDARD OF ACCURACY"

This isn't just our own appraisal of Marsh Gauges. It truly expresses the feeling of hundreds of users. When a product reaches such a position few people ask how it got there. But if you check back over the years in which Marsh has been making gauges you will find that Marsh has not only shown the way in the big developments, but has also given more attention to the small details and refinements . . . that count most. This applies to all Marsh equipment and is particularly well exemplified in the Marsh Mastergauge illustrated above.

It would be a wonderful thing if someone would devise a pressure gauge that could take abuse and still remain absolutely accurate.

But every operating man knows that such a gauge has never been made. A sudden surge of over-pressure or some other unexpected shock will knock the best gauge made off the beam. Of course such shocks should be avoided, but unfortunately they just can't be eliminated even in the best regulated plants.

So even the finest gauge of them all — even the Marsh Mastergauge, for example — may at sometime go out of adjustment. What then?

Well . . . if it were the conventional type of gauge you would have to laboriously remove the pointer, glass ring and dial, and reset the movement adjustment. But when a Marsh Gauge is out of adjustment it's only a passing incident. You simply turn the "Recalibrator" screw until the pointer goes to the zero mark, and this can be done in less time than it takes to tell it.

The "Recalibrator" is not only the *handy* way to correct the error; it's also the *best* way. Practically all errors in gauges are caused by distortion of the bourdon tube. This distortion produces an incorrect relation between the tip of the tube and the movement. When you reset the pointer, you don't correct this relationship; you simply compensate for it. As a result the gauge may be corrected at the zero point but be incorrect at certain other points on the dial.

The "Recalibrator" actually re-establishes the relation of the tube to the movement. Therefore it actually *does* "re-calibrate" the gauge.

When you stop to think it over, it's perfectly logical that the "Recalibrator" should be found on the gauge that needs it least. The manufacturer who takes the most pains to build a gauge that *is* accurate would naturally be the manufacturer to provide the best means of *keeping* it accurate!

JAS. P. MARSH CORP., 2054 Southport Ave., Chicago 14, Ill.

Export Department: 155 East 44th Street, New York 17, New York

MARSH GAUGES

"THE STANDARD OF ACCURACY"

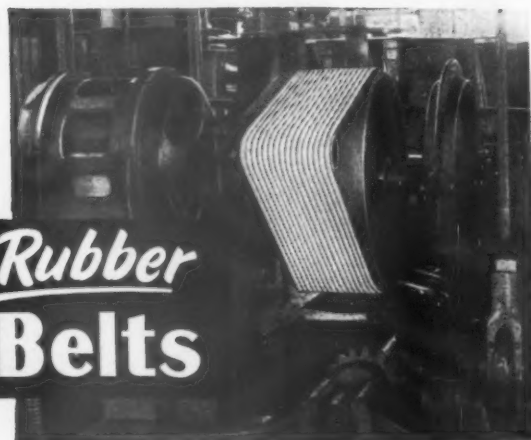
DIAL THERMOMETERS

HEATING SPECIALTIES

*In Hundreds
of Plants—*

GATES *Synthetic Rubber* V-Belts

ONE EXAMPLE: On this drive, operating conditions gave the belts a severe soaking with oil. Gates special synthetic V-belts were installed. They are giving more than twice the service life of any belts previously used.



Are **OUTWEARING**

Any **NATURAL RUBBER V-BELTS** Ever Used!

Now that every V-Drive in your plant depends upon belts made of synthetic rubber it pays to know that Gates Synthetic Rubber V-belts have been in nationwide use for more than 6 years—and through all that time they have been giving service actually superior to belts of natural rubber!

There is naturally a reason for this marked superiority of Gates synthetic rubber belts—and here it is:

Gates began making large quantities of belts entirely of synthetic rubber long before synthetic rubber came to be thought of as merely a substitute for natural rubber. Gates used synthetic rubber not as a substitute but as an improvement—in fact, Gates chose a very special synthetic for the one reason that it is, in many important respects, greatly superior to natural rubber.

*There are, of course, many kinds of synthetic rubber. Gates uses each kind where it best meets some particular service need.

For Example:—One special synthetic rubber which Gates uses extensively in making V-belts has the ability to withstand oil and heat much better than natural rubber can. Where oil and heat conditions are especially severe, Gates special synthetic V-belts are giving 3 times to 4 times the service life of any natural rubber V-belts ever used.

This is the record not of a few belts over a limited period but of thousands upon thousands of

Gates synthetic rubber V-belts installed in hundreds of plants and factories during the past 6 years.

Gates long headstart and outstanding success in making V-belts of synthetic rubber is of greater importance to you now than ever before because the entire operation of your plant today depends so largely on synthetic rubber V-belts.

You will gain a distinct advantage in V-belt service and operating efficiency by picking up your telephone directory and calling the Gates Rubber Engineer. (Just look under the heading "Gates Rubber.") He will bring right into your plant the full benefits of Gates' knowledge and experience—without the slightest obligation.

THE GATES RUBBER COMPANY

*Engineering Offices and Stocks
in All Large Industrial Centers*

4411

GATES VULCO ROPE DRIVES

CHICAGO, ILL.
549 West Washington

NEW YORK CITY
215-219 Fourth Avenue

ATLANTA, GA.
738 C & S National Bank Building

LOS ANGELES, CAL.
2240 East Washington Boulevard

DENVER, COLO.
999 South Broadway

DETROIT, MICH.
8663 Grand River Avenue

PORTLAND, ORE.
333 N. W. 5th Avenue

DALLAS, TEXAS
2213 Griffin Street

SAN FRANCISCO, CAL.
1090 Bryant Street



Nature made Asbestos

HERE'S HOW KEASBEY & MATTISON IS MAKING
IT SERVE INDUSTRIAL CONSTRUCTION

VERSATILE...

because it's durable, easily installed, economical

K&M
"Century"
APAC

Almost 1,000 square feet of "Century" Apac were used in the warm air duct installation pictured above. Ideal for this type of work... "Century" Apac can be quickly cut and assembled on the job... is structurally strong... inherently fireproof.

This is just one of hundreds of uses for this versatile asbestos-cement sheet material, in the industrial construction field. Tremendous quantities of "Century" Apac are now serving America's war and consumer industries as siding, roofing and interior sheathing. You'll understand why it has been the most extensively used material of its kind when you check these Apac advantages:

- (1) Apac, being made of asbestos fibre and portland cement, is safe and durable. It completely resists fire, rust, termites, vermin.
- (2) Apac is easy to handle, because it comes in convenient sizes, 4' x 8', 4' x 9', 4' x 10'... fastens with nails or screws... can be furnished already pre-drilled if desired.
- (3) "Century" Apac is economical. Its ease of application means savings in labor costs. Practically no maintenance required.

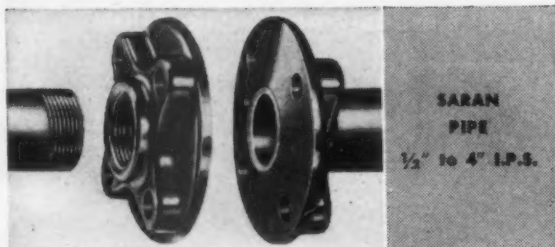
Prompt delivery is assured. For further information on "Century" Apac, write Keasbey & Mattison Company now.



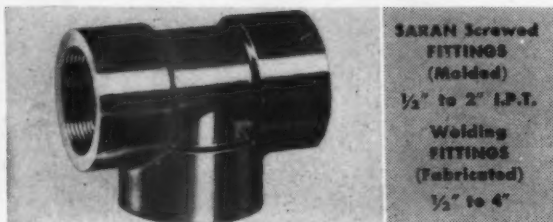
KEASBEY & MATTISON
COMPANY, AMBLER, PENNSYLVANIA

PLASTIC

PIPE, TUBING, AND FITTINGS

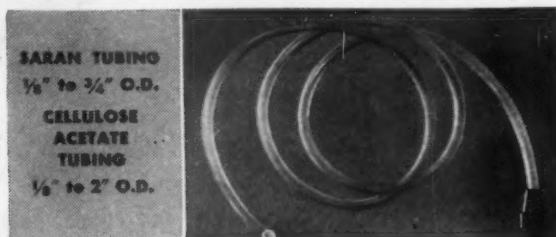


**SARAN
PIPE**
½" to 4" I.P.S.

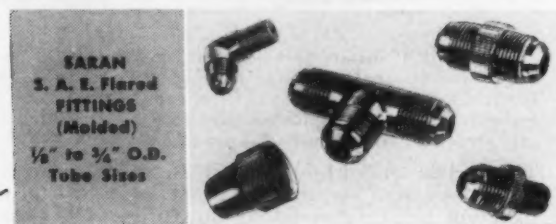


**SARAN Screwed
FITTINGS
(Molded)**
½" to 2" I.P.S.
**Welding
FITTINGS
(Fabricated)**
½" to 4"

For many applications, Plastic Pipe, Tubing, and Fittings offer special advantages in improved performance with resulting economy. They are now available from Grinnell, along with other new and important developments for piping.



SARAN TUBING
½" to ¾" O.D.
**CELLULOSE
ACETATE
TUBING**
½" to 2" O.D.



**SARAN
S. A. E. Flared
FITTINGS
(Molded)**
½" to ¾" O.D.
Tube Sizes

Write or call the Grinnell office nearest you.

GRINNELL

WHENEVER PIPING IS INVOLVED

GRINNELL COMPANY, INC.

Executive Offices, Providence 1, Rhode Island

SALES OFFICES

Atlanta, 2, Ga.
Charlotte, 1, N. C.
Chicago, 9, Ill.

Cleveland, 14, Ohio
Houston, 1, Texas
New York, 17, N. Y.
Minneapolis, 15, Minn.

Philadelphia, 34, Pa.
St. Louis, 10, Mo.
St. Paul, Minn.

Stick 'Em Up

(Continued from page 346)

sit at the council table opposite the slickest lot of shell-workers Britain and Russia and the others will line up?

David Harum was a hell of a horse trader, but how much show would he have trying to swap Joe Stalin out of a hoss Joe wanted to keep? One thing I fear is, that we will appear in the final settlement as a lot of exceedingly gullible amateurs; we will tell the squint-eyed world how generous we are and prove it by adjourning to the corner for a drink, leaving a wad of our visible assets lying loose on the council table.

I wonder why Associations of Purchasing Agents don't go in for a little politics. Damned if I don't believe they would do better than the politicians.

1 1 1

Western Purchasing Agent

(Continued from page 73)

come more familiar with production of the material he procures. The time when the country may begin to feel the "Greater Western Sphere of Influence" may not be too far in the distant future, and the Western Purchasing Agent is looking forward to it with longing eyes. His greatest concern and desire at the moment, however, is to win the war against our common enemies and he is bending every effort toward that end.

1 1 1

Governmental Purchasers Organize

(Continued from page 80)

The annual meeting is in fact a training institute giving an intensive short course of advanced training in governmental purchasing. Special conferences of members are called by the Institute when necessary.

The Institute will hold its first annual conference in Chicago on May 23, 24 and 25, 1945. This is the first forum of its kind for governmental buyers of the United States and Canada. No governmental purchasing official can afford to miss it. Conference plans are being developed by a Committee

(Continued on page 352)

On Your Next Order For HACKSAW BLADES



Specify
JESSOP
COMPOSITE
HACKSAW BLADE
STEEL

★ Jessop Composite Hacksaw Blade Steel is new! It has many advantages including resistance to mechanical shock and breakage due to binding in work and twisting during cutting operations. Important, too, is its safety factor, for if it should break it will not fly into small pieces to endanger the operator.

Jessop Composite Hacksaw Blade Steel is economical because of its high performance. The cutting surface ($\frac{3}{8}$ " wide) is high speed steel, while the balance is mild steel. The "eyes" are located in the mild steel part

which is extremely tough and eliminates the possibility of pulling the "eyes" out during adjustment. Jessop Composite Hacksaw Blade Steel is made by a patented process* in which high speed steel is permanently bonded to a section of mild steel. The unusual shape of the insert and the iron plating of the component parts permit the diffusion weld which takes place during hot rolling. This material can be furnished in all standard sizes and gauges for power cutting machine hacksaw blades.

*Process Patent No. 1,952,002

Jessop Steel Company

Head Office and Works: WASHINGTON, PENNA.

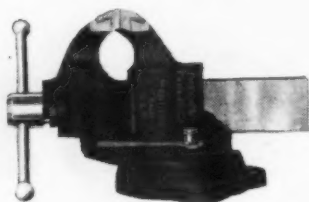


Established 1901



Strength to Spare!

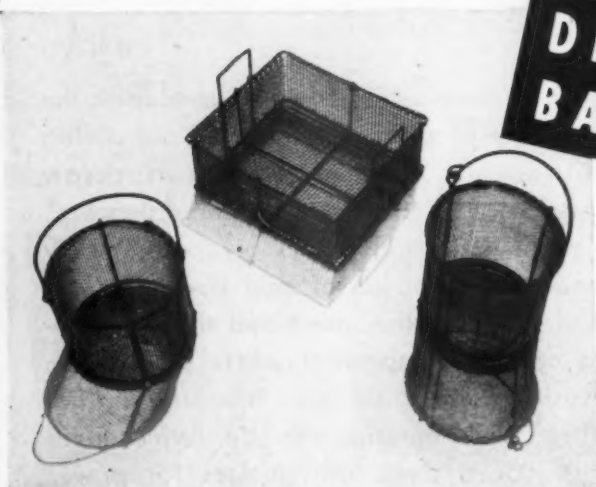
There's no guesswork about the strength of vise castings at Parker! The mixing of the iron by careful weighing and analysis, plus 100 years of experience, and *constant control in our own foundry* makes the strength of Parker Vises a sure thing. That's a big reason why your Parker Vise "Grips Like a Grizzly". The Charles Parker Company, Meriden, Connecticut.



PARKER VISES

America's Oldest

AVAILABLE



**JELLIFF
DIPPING
BASKETS**

ALSO

•
WIRE CLOTH
STRAINERS
FILTERS
GRIDS
AIR VENTS
SCREENS

IMMEDIATE PRODUCTION:

We have available additional capacity for the production of every type of wire strainers, filters, dipping baskets, and other wire-mesh fabricated parts, manufactured to standard or to your own specifications. Prompt delivery is assured.

The C.O. JELLIFF MFG. CORP.
22 PEQUOT AVENUE • SOUTHPORT, CONN.

Governmental Purchasers Organize

(Continued from page 350)

headed by Joseph W. Nicholson, a Vice-President of the Institute and City Purchasing Agent of Milwaukee.

Institute Headquarters

The Institute is located at 730 Jackson Place, N. W., Washington 6, D. C., in the headquarters building of the United States Conference of Mayors. The Institute officers are equipped to render service with speed and accuracy and at a minimum of expense. Space is available where governmental purchasing officials may work or confer while in Washington on official business. When governmental purchasing officials are in Washington they can keep in touch with their home offices through the Institute office. Each member agency thus has an official office in the National Capital which it can use at any time and as long as desired.

Current Institute Activities

The Institute issues a series of research publications on governmental purchasing organization and administration and also a bi-weekly publication known as the "Governmental Purchasing News." This bulletin contains a record of current progress in governmental purchasing.

The Institute is giving close attention to the disposal of surplus war materials, supplies and equipment to non-federal governmental agencies. The Directors of the Institute have developed a simple and workable plan for the distribution of war surpluses to such agencies. The NIGP plan will be presented to the Board to be established under the Surplus Disposal Law of 1944.

The Board of Directors of the Institute held its first regular meeting at Milwaukee, September 17-20, 1944. Articles of organization necessary for incorporation under Wisconsin laws, By-Laws, a membership application form and a membership dues schedule were adopted.

Governmental purchasing officials desiring further information about the Institute should communicate with its Executive Director, Albert H. Hall, 730 Jackson Place, N. W., Washington 6, D. C. Mr. Hall will send to such inquirers a brochure titled "At Your Service," which describes in detail the organization, services, annual dues and procedure for affiliation with the Institute.

TRICK SHAPE FOR A TEE TO TAKE



(Another example of Taylor Forge "know-how" that means extra value in WeldELLS)

★ It's easy, though not economical, to forge a piece of solid metal to the external shape of a tee like this, and then bore the run and branch. But to start with a seamless tube, form the long outlet, and at the same time maintain full wall thickness and adequate reinforcement, is quite a different matter.

Taylor Forge tackled this problem a good many years ago and made the first seamless welding tees having outlets of ample length. The methods for doing this production job can also be used to make unusually long outlet tees such as the "special" pictured here. We have never seen another like it. Have you?

ACROSS the years, when the question has been, "Who can handle this difficult forging requirement?", industry's verdict has almost invariably been Taylor Forge. It is a verdict based on a great and ever-growing volume of evidence, just a few examples of which are being cited here.

This recognized "know-how"—this conceded knowledge of how to control hot metal under pressure and impact—has a highly important bearing on our standard line of WeldELLS, tees and other Taylor Forge Welding Fittings.

It is this broad knowledge, and the special processes springing from it, that enable us to give you so many *extra* features in WeldELLS and other Taylor Forge Welding Fittings. It explains why we can control the distribution of metal—place extra metal where stresses are greatest. It explains the extreme accuracy of dimensions . . . the absolute uniformity. It explains why WeldELLS have the features listed opposite . . . why, in fact

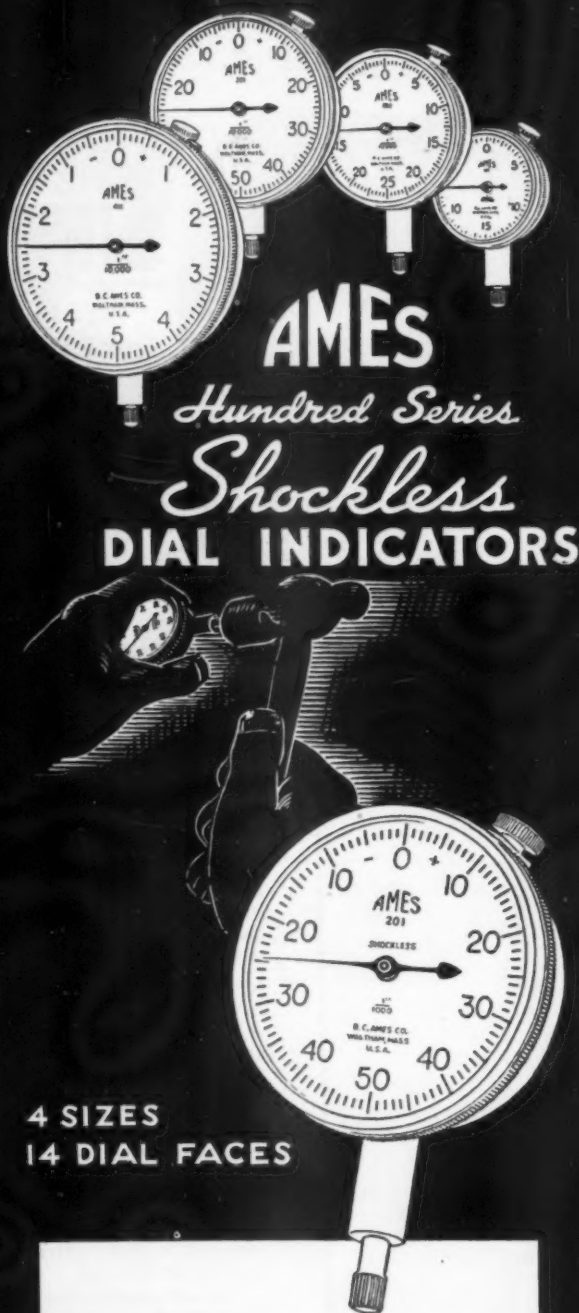
WeldELLS have everything

TAYLOR FORGE & PIPE WORKS, General Offices & Works: Chicago, P. O. Box 485
New York Office: 50 Church Street • Philadelphia Office: Broad Street Station Bldg.

WeldELLS alone combine these features:

- **Seamless**—greater strength and uniformity.
- **Tangents**—keep weld away from zone of highest stress—simplify lining up.
- **Precision quarter-marked ends**—simplify layout and help insure accuracy.
- **Selective reinforcement**—provides uniform strength.
- **Permanent and complete identification marking**—saves time and eliminates errors in shop and field.
- **Wall thickness never less than specification minimum**—assures full strength and long life.
- **Machine tool beveled ends**—provides best welding surface and accurate bevel and land.
- **The most complete line of Welding Fittings and Forged Steel Flanges in the World**—insures complete service and undivided responsibility.





Ames Dial Indicators have small and accurately made gear trains for indicating size variations as fine as .0001". These highly sensitive gear trains are protected from damaging shocks by a simple shock-absorber which does not change their action or appearance.

Get acquainted with these popular shockless indicators by ordering them with any dial numbering desired.

Complete catalog on request.

B. C. AMES CO.
WALTHAM MASS. U.S.A.

DRAFT WPB V-E DAY PLAN

**Plan Being Studied by Government Agencies
Would Revoke Great Bulk of Orders and
Regulations**

J. A. KRUG, Chairman of the War Production Board, announces that the special WPB Task Committee appointed to work out the details of the WPB V-E Day plan has completed the first phase of its operation. A draft has been developed and is being distributed to other Government agencies and to WPB industry division for comment and suggestions. It is subject to change and should not be considered final, the Chairman said.

The Task Committee has been operating under a specific directive of the full War Production Board, which on September 5, 1944, unanimously adopted a V-E Day policy that included the following basic principles:

"1. WPB to remove controls over materials immediately upon the defeat of Germany except those controls that are absolutely necessary to assure the reduced measure of war production necessary to beat Japan. This means that all manufacturers can use for any civilian production any plant and any materials that are not needed for war production.

"2. The War Production Board, in cooperation with other Government agencies to do everything within its power to assist and encourage industry in resuming civilian production and maintaining employment through the 'know-how' of its industry divisions and industry and labor advisory committees.

"3. The board to maintain its organization and powers so as not to relinquish authority until it is certain that the war production program is adequate for victory over Japan."

Task Committee Proposals

To carry out this mandate, the Task Committee made the following proposals:

1. Replacement of the present preference rating structure by a single, fully extendable, MM rating band, reserved almost exclusively for direct military requirements, including military lend lease.

2. Continuation of the AAA preference rating, which will be used as at present to break military production bottlenecks, but also for civilian emergencies of a serious nature. This rating is tantamount to a motorcycle escort through traffic.

3. Authorization on V-E Day for steel, copper, and aluminum mills and warehouses to accept orders and make deliveries of these materials without CMP "tickets," and complete elimination of the Controlled Materials Plan as soon as practicable thereafter. However, orders placed prior to V-E Day for CMP materials should retain preferred status for a limited period.

4. A transition to the new priorities policy that will combine a minimum of paper work and reshuffling of production schedules with necessary protection of military procurement and the earliest possible achievement of free action in the civilian economy.

5. Revocation on V-E Day of the great bulk of conservation, limitation and other WPB orders and regulations; retention of orders in simplified form only where clearly necessary to protect military procurement or minimum civilian requirements basically essential to the effective functioning of the economy and progressive revocation of remaining orders as quickly as feasible.

In all, some 500 L, M, P, E, U, and R orders are on

(Continued on page 357)

★
A COMPLETE NEW LINE!
CENTRAL *Certified Accuracy* **MICROMETERS**
FOR IMMEDIATE DELIVERY!
 ★



No. 110RL



No. 120RL



No. 210RL



No. 220RL



No. 320RL



No. 420RL



No. 520RL



No. 620RL



No. 735RL



No. 745RL



No. 765RL

WRITE TODAY FOR
CATALOG No. 14



• The entire line of individual Micrometers and complete sets illustrated and fully described. Write today to The Central Tool Co., Auburn, Rhode Island.

All frames forged of the finest special alloy steel
 ★ ★ ★ The new improved polished frame Micrometers in 1" and 2" sizes ★ ★ ★ The new black enamel finish Micrometers in all sizes from 1" to 6"
 ★ ★ ★ Also available with ratchet stop, lock nut and 10,000ths graduations ★ ★ ★ A full range of Metric Micrometers in addition to complete sets in leather covered cases—0" to 3", 0" to 4" and 0" to 6"



THE CENTRAL TOOL CO.

Micrometers of Certified Accuracy

AUBURN . . . RHODE ISLAND

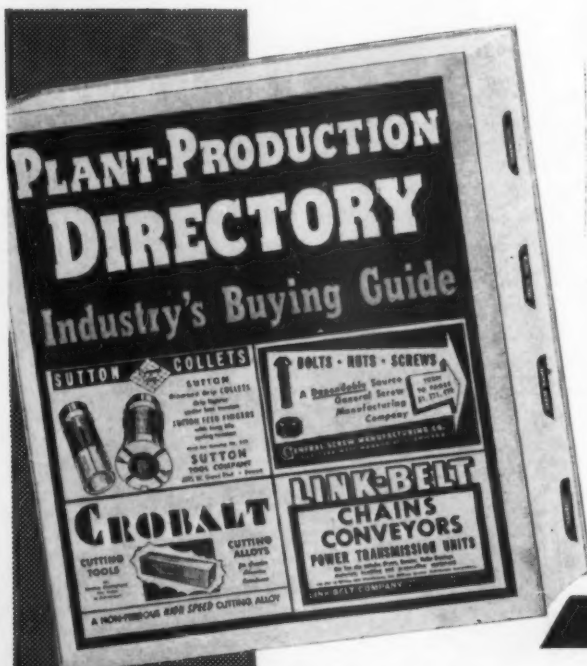


THE CENTRAL *Certified Accuracy* MICROMETER
GUARANTEE
 This instrument is highly tested and is guaranteed accurate. If for any reason you are dissatisfied with the tool, return it with the guarantee within 30 days of purchase and the purchase price will be refunded.
 This guarantee, of course, is void in case of misuse, abuse, neglect or other cause not inherent in the tool itself.
 The Central Tool Co.
 MICROMETERS OF CERTIFIED ACCURACY
 AUBURN, RHODE ISLAND



PLANT-PRODUCTION DIRECTORY

Eliminates SNARLS for Industrial Buyers



Industrial Buyers, too, experience periodic snarls which often upset the even tenor of their workaday world . . . those annoying entanglements arising from the where-to-buy-it queries that are bound to "crop-up" even in the best regulated industrial plants. Such complications, however, can be eliminated quickly and easily by just acquainting yourself with the PLANT-PRODUCTION DIRECTORY now available in your office. You'll like PLANT-PRODUCTION DIRECTORY'S reliable, simplified short-cut to sources-of-supply. It's easy to use . . . it's complete . . . and it's accurate! So adapt PLANT-PRODUCTION DIRECTORY, industry's "tailor-made" streamlined guide, as your BUY word for all your maintenance and production requirements . . . and never be hampered by buying snarls again.

A CONOVER-MAST PUBLICATION

Is YOUR product
being advertised in
Plant-Production Directory?

PLANT-PRODUCTION DIRECTORY
333 North Michigan Avenue • Chicago 1, Illinois

(Continued from page-354)

WPB books today. Of these about 200 apply to chemicals, textiles (including leather and cordage), and forest products (including containers)—in which widespread shortages are expected to continue. Only half of the orders on this group of tight materials can be revoked immediately; about 100 will have to be retained.

Of the other 300 orders, covering other areas of the economy (particularly metals and metal products), it is proposed to revoke 250, leaving only 50. Thus all told, the proposal calls for revoking 350 out of 500 orders. And the 150 that are to be retained will be greatly simplified. In effect, orders controlling hard goods—metal products—are to be virtually eliminated.

6. Maintenance of a full kit of tools to deal with emergencies. The committee recognizes that military cutbacks will necessarily be uneven in their impacts, producing extremely heavy reductions in demand for some materials and products and virtually no change in others. So long as this is the case, WPB must retain some allocation and scheduling controls and must maintain its contingent authority to minimize the consequences of acute shortages when they develop. To do this, WPB must maintain an effective organization, including a competent field staff, a compact group of industry divisions staffed by men with industrial know-how, and continuing contact with business and labor through the operation of industry and labor advisory committees.

7. Maintenance of sufficient reporting of information to afford at all times a clear understanding of the industrial picture and to permit immediate and intelligent remedial action where indicated.

There should, however, be no spoon feeding of the economy, according to the report. No attempt should be made to curtail individual initiative in the search for and purchase of materials and components that will remain in short supply for only a brief period. No action should be taken that might hamper private enterprise or ingenuity, either by restricting members of an industry to historical pattern of business or by preventing entry of newcomers. Except for military requirements, which must be protected at any cost until victory over Japan is secured, it is expected that essential needs will by and large be met without Government control, either restrictive or supporting.

The Fewer, The Better

The Task Committee, in carrying out its responsibility, was instructed to eliminate rules, regulations, and orders whenever and wherever feasible—on the theory that the fewer the restrictions the quicker would be reconversion and reemployment. However, in cases in which materials and components were certain to be in short supply, maintenance of conservation and allocation orders was prescribed.

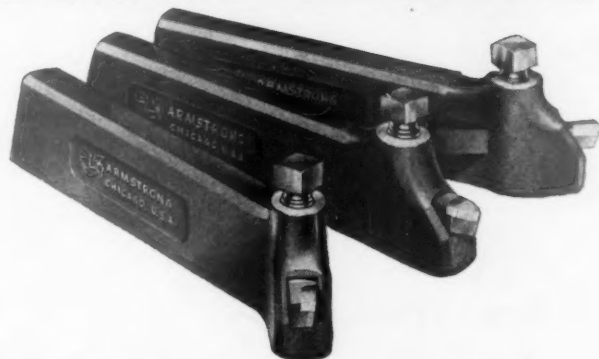
Since decisions on detail will have a direct effect on the operations of other war agencies, the report is being referred to them to assure its workability and soundness. In its present form, the report is in numerous sections, and each section has its accompanying appendices and commentaries.

"A lot of persons know parts of the detail," said Mr. Krug, "but nobody, not even the chairman of the Task Committee, knows all of it, and won't until the final draft is finished and signed. Therefore, industry, labor, and the press might do well to take with a grain of salt any statements about what the draft does or does not contain. The basic principles are well known and have been stated often. The details of how we are to carry out those principles are still in process of development."

ARMSTRONG

Carbide

TOOL HOLDERS



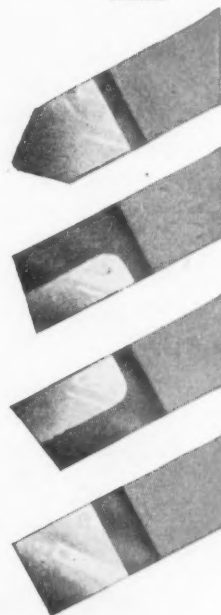
Each Takes Carbide Tipped Cutters of Many Shapes

ARMSTRONG Carbide TOOL HOLDERS have been specially designed and engineered for use with Carbide-tipped tool bits, and embody the special characteristics essential for the efficient use of carbide-tipped cutters, namely; great strength, extreme rigidity and close-up support for the cutting edge, and a "flat" cutting angle. They are drop forged from a special analysis steel. They differ from the universally used ARMSTRONG TURNING TOOL HOLDERS for ordinary high speed steel cutters, in the following details: (1st) they are heavier, size for size — are wider and less shaped at the "neck". (2nd) They are extended far forward under the cutter to give close-up support to the cutting edge. (3rd) They hold tipped tool bits at a "flat" angle parallel to the shank (instead of the $14\frac{1}{2}^\circ$ angle standard for high speed steel cutters). This reduces the end clearance requirements (necessary back rake) so that cutters need to be ground back but slightly, under the cutting point. (4th) They are available in various sizes with optional broachings — either for "Square Shank" or "Heavy Duty Shank", ARMIDE or other carbide-tipped tool bits.

Each ARMSTRONG Carbide TOOL HOLDER is a permanent, multi-purpose tool. Each takes Armide or other carbide-tipped tool bits ground to innumerable different cutter shapes. Hence, each does the work of a complete set of solid carbide-tipped tools. Coming in many sizes, all taking interchangeably standard carbide-tipped tool bits, which are now stocked in several cutter forms by all leading industrial supply houses, they provide a complete "System of Carbide Tools" which are readily obtainable at nominal cost . . . a system of tools which makes practical the use of carbide tools for every day work in the average tool room, maintenance department or machine shop.

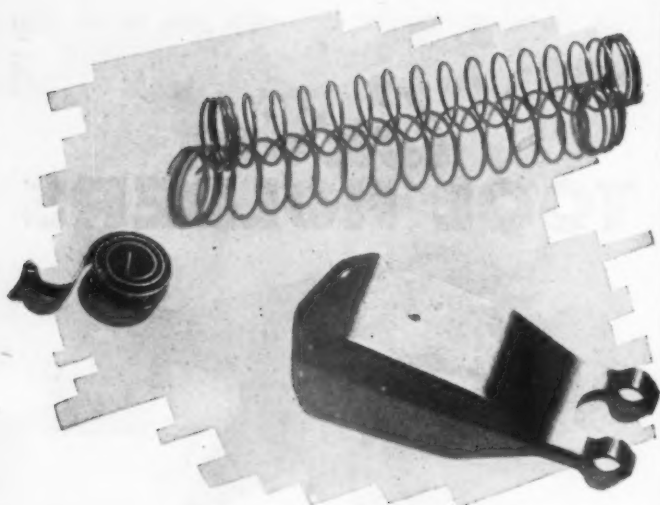
Write for ARMSTRONG-ARMIDE Bulletin

ARMIDE Carbide - Tipped Cutters come in two grades and 4 standard shapes with square or "Heavy Duty" Shanks.



ARMSTRONG BROS. TOOL CO.

"The Tool Holder People" 303 N. Francisco Ave., Chicago, U.S.A.
Eastern Warehouse & Sales: 199 Lafayette St., New York



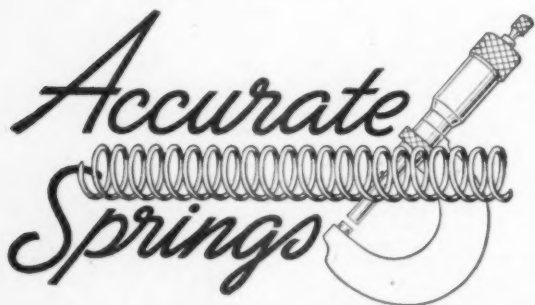
interested in

Beryllium Copper Springs?

• If you are, you'll find at Accurate, a specialized knowledge of this unusual spring material... a knowledge that is based upon research and experience in the material and its use and advantages in spring manufacture. Accurate has produced many types of beryllium copper springs with close control of tolerances and physical properties—the torsion and compression brush springs and the aircraft carburetor idle valve flat spring shown here are examples. When your "specs" or plans call for beryllium copper springs, Accurate "know-how" in precision spring manufacture and experience with beryllium copper are at your service.

If you have a spring problem, whatever it may be, Accurate engineers will be glad to help you work it out.

Send for your copy of the new Accurate Spring Handbook. It's full of data and formulae which you will find useful... No obligation of course.



ACCURATE SPRING MANUFACTURING CO.
3825 West Lake Street • Chicago 24, Illinois
SPRINGS • WIREFORMS • STAMPINGS

SALE OF TERMINATION INVENTORIES STATEMENT OF POLICIES

THE Statement of Policies dated April 21, 1944 (9 F. R. 4559), as amended under dates of July 10, 1944 and September 16, 1944 (9 F. R. 7842, 11614), has been amended in the two following respects:

1. Subparagraph 2 (d) of paragraph B of Part IV is amended to read as follows:

"(d) All sales of such scrap which are made without competitive bidding shall be subject to the buyer's warranty that the property will in fact be used as scrap. The agency in charge of the sale may, if it chooses, require such warranty in cases where the sale is made on competitive bidding. A warranty substantially as follows is recommended:

'The purchaser represents and warrants to the United States that the property covered by this agreement was offered as scrap, purchased by him as scrap, and that he will sell and ship or use it as scrap either in its existing condition or after further preparation and only in conformity with all applicable regulations and orders of the Office of Price Administration and the War Production Board.'

2. Subparagraph (b) (1) of paragraph 2 of Part V is amended to read as follows:

"(1) Sales of nominal quantities (single items, or groups of items where the cost, estimated if not known, of all substantially similar items at any one location does not exceed \$2,500) should be made at the best price obtainable."

1 1 1

REMOVE 42 MATERIALS FROM SUPPLY LIST

Steel Castings, Rope Wire and Wire Rope and Paper and Paper Products Placed in Group 1—Fourteen In Excess of Industrial Needs

FORTY-TWO materials, the supply of which has increased, have been removed from Group I in the fourteenth and final Material Substitutions and Supply List, the War Production Board announced today. Materials in group I are those of which the supply is insufficient to satisfy war and essential industrial demands.

Seventeen materials, among them paper, penicillin and carbon tetrachloride, have been added to Group I.

The 42 materials removed from Group I follow:

Metals—Columbium. **Plastics**—Acrylic resins, allyl resins, ethyl cellulose and polystyrene. **Chemicals**—Allyl alcohol, calcium carbonate, cobalt chemicals, dipentene, furfural, isopropyl acetate, menthyl isobutyl ketone, styrene, thiourea and urea. **Lumber and Plywood**—Beech, cottonwood, elm, gum, larch (western), magnolia, poplar (yellow), sycamore, tupelo and willow. **Textiles and Fibres**—Feathers and down (waterfowl), hair (horse tail, mane and cattle tail). **Fuels**—Residual fuel oil. **Miscellaneous**—Calcite (optical), cork (grinding and milling), ementine, enamel wire naphtha, ester gum, ipecac, lactose, mica (phlogopite; block and splittings), tung oil, pine tar, pyrophyllite, quartz crystals (NBS No. 1), rosin (gum and wood), synthetic rubber (neoprene).

The 17 materials placed in group I follow:

Metals—Steel castings (medium and small), rope wire (high carbon 0.57 and smaller), wire rope. **Chemicals**—Adipic acid, butyl alcohol, butyl acetate, carbon tetrachloride, chlorates and perchlorates, hydrofluoric

(Continued on page 360)

ANOTHER
SPECIAL BY
PROGRESSIVE

QUALITY
PROMCO
BRAND

ACTUAL
SIZE

ENLARGED FOR DETAIL

71 other "specials" are illustrated in Catalog 18, which includes tables of weights per 1M standard pieces, dec. equivs. of fractions, etc. Write for it.

Special heads, threads, and finishes — on fastenings of any metal or alloy adapted to cold-upset — are Progressive's specialty. Weekly output: 25,000,000.

The PROGRESSIVE MFG. CO.
42 NORWOOD ST., TORRINGTON, CONN.

★ ★ ★ ★ ★
BONDS BUY MORE WAR BONDS ★ ★ ★ ★ ★

ORANGE CORE SEALING TAPE * AMERICA'S MOST POPULAR BRAND

YOU'RE SURE
when you use

ORANGE CORE
Sealing Tape

sure of getting the speediest, most
tenacious of tapes. Sure of getting
the best at no extra cost! Ask for
Orange Core next time you order
tape, and see how its uniform
dependability helps your shipments
move out faster and get there safer!

ORANGE CORE SEALING TAPE * AMERICA'S MOST POPULAR BRAND

Moore & Thompson • Div. Hudson Pulp & Paper Corp. • 220 E. 42nd St. N. Y. C.

**LET JESCHKE HELP YOU
WITH
YOUR RECONVERSION PROBLEMS**

★ If reconversion in your plant calls for wire shapes or forms or light metal stampings you can forget that worry. Let Jeschke's engineering staff help you with the designing and engineering and let Jeschke's production experts meet your requirements, when you need them.

As the result of years of experience in making all kinds of wire shapes and forms by the millions, you'll find the Jeschke organization helpful in many ways. We're ready to help with your reconversion. Just send a sample, blueprint or drawing or tell us your problem. No obligation, of course.

**ALL STANDARD
FINISHES AVAILABLE**

Our plant is equipped to give you Bonderized, Parkerized and enameled finishes that meet Army and Navy specifications.

JESCHKE

WIRE AND SPECIALTY CO.

700 POSTON DRIVE
CRAWFORDSVILLE, INDIANA



IF IT'S MADE OF WIRE WE CAN MAKE IT



Provides a "SURETY BOND" for Shipments to Every Climate!

Impervious to desert heat or polar cold and so water-resistant that it will not fail as long as the carton holds together—that's the kind of a bond that Tanglefoot W-51 Solvent gives to ordinary gummed tape. And it works equally well with tapes of the SOLSEAL type. W-51 provides a "surety bond" for shipments overseas, for domestic packaging of high-moisture products, for cold storage and frozen foods. Requires no special equipment or formulas. Sets tape harder and faster. Write for samples.

TANGLEFOOT Solvent "W-51"

The Tanglefoot Co., 401 Straight Street, S. W., Grand Rapids, Mich.

FINE DIAMONDS

Since 1912 we have been direct importers of fine diamonds. Our values are outstanding. Selections sent for inspection without obligation.



L. & C. MAYERS CO.

ESTABLISHED 1912

Importers of Fine Diamonds
545 FIFTH AVENUE
NEW YORK

(Continued from page 358)

acid (anhydrous), lactic acid, methyl amines and potassium permanganate. *Fuels*—Bituminous coal (by-product quality only), coke (coal). *Miscellaneous*—Congo copal resin, fluorspar (acid), paper and products, penicillin.

Fourteen materials have been placed on Group III because these materials are in excess of current industrial needs. They are:

Metals—Tantalum and zinc. *Plastics*—Allyl resins. *Lumber*—(Elm soft), hackberry and sycamore. *Fibres*—horse tail (dressed). *Fuels*—Gas (manufactured). *Miscellaneous*—Agar, albumin (blood), concrete products (precast), graphite (Ceylon lump, 90-95 per cent carbon, and Madagascar flake, 92.5 per cent carbon and less), rubber (synthetic), Buna S (GR-S) and spodumene.

The Conservation Division said in the final Material Substitutions and Supply List:

"The supply of some fabricated and semi-fabricated metal products continues to be tighter than the metals themselves, due to shortages in either manpower or in manufacturing facilities, or both. Among such ferrous items are malleable iron castings; small and medium size steel castings; automotive type gray iron castings; wire rope and rope wire; quality carbon cars and forging billets. For non-ferrous, such shortages are in copper and copper base alloy tubing over 4 inches; all insulated copper wire; cable and coards (other than weatherproof wire and cable). Similar shortages are found in tungsten and molybdenum rod, wire and sheet.

A partial list of materials that will remain scarce after "V-E" day is provided by the Conservation Division as follows: tin, sisal, cattle hides (including kip), kapok, manila, coal (anthracite), containerboard (kraft), corundum, paper and products, pyrethrum, natural rubber and cotton broad woven fabrics. Also it is expected that softwood lumber generally will be short.

1 1 1

TIGHT PRICE CONTROLS FOR RECONVERSION PERIOD

MANUFACTURERS contemplating reconversion to peacetime production in the near future must expect tight price controls by the Office of Price Administration. The reconversion price control goal of OPA is to maintain, insofar as it is possible, the 1942 scale of prices. This statement of policy was made by William F. Kelly, price executive of the OPA, in an address before the Chicago Association of Commerce.

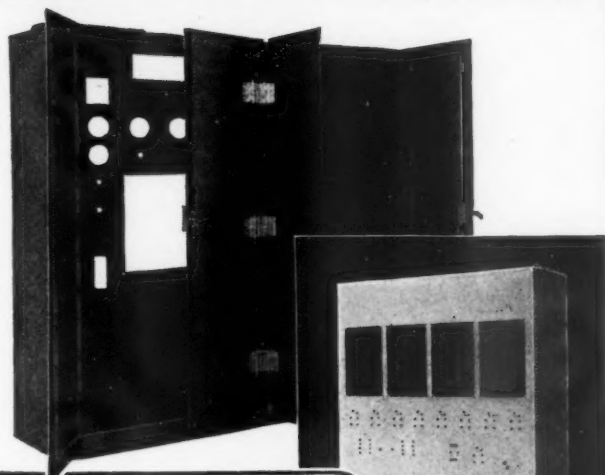
Departures from this basic policy will be allowed only when a manufacturer can prove to the satisfaction of the OPA that enforcement of the 1942 price policy is inflicting a hardship, Mr. Kelly said. Manufacturers will not be allowed to increase prices established before they went into war production upon reconversion to peace production without OPA authorization. If they act without such authorization, they incur the risk of heavy penalties.

They may however apply for a price adjustment prior to actual reconversion which, if granted, will enable them to continue plans for making the former product. Prices may be set on articles not previously on the market by the company making them, but in the event the company errs in computing its costs, thereby pricing the article at a price higher than the OPA approves, it is again liable to penalties.

Mr. Kelly assured his audience that the OPA policy

(Continued on page 362)

INSTRUMENT MOUNTING STRUCTURES



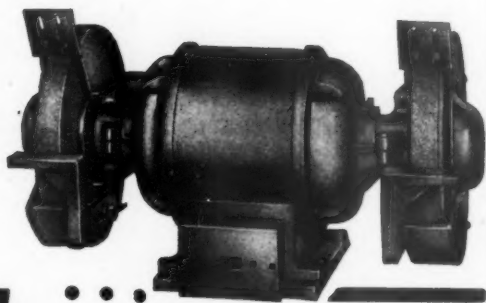
Littleford Fabricating Engineers are skilled in precision fabrication of instrument mounting structures for recording and control elements. In addition, these Engineers know how to give structural strength and appearance when forming each unit. If steel cubicles, desk type control units, bench boards, or special enclosing structures are needed, let Littleford Engineers be of service.



LITTLEFORD

LITTLEFORD BROS., INC.
446 E. Pearl St., Cincinnati 2, Ohio

Valley Heavy Duty GRINDERS Ball Bearing MOTORS



VICTORY on the production front is being aided mightily by the economical and faithful service of thousands of Valley motors and grinders in war plants everywhere.

Prompt delivery of Valley Equipment can be obtained by those authorized to purchase.

Valley Ball-Bearing Motors from 1/2 h.p. to 75 h.p. . . Grinders from 1/4 h.p. bench type to 5 h.p. pedestal models.



VALLEY ELECTRIC CORP.

4221 Forest Park Blvd.

St. Louis, Missouri



WRAP SECURELY ADDRESS CLEARLY EXPRESS BEFORE DEC. 1st

BEFORE YOU can wrap, address and ship you *first* must have bought something. Have you completed your Christmas shopping, particularly for those gifts you will send out of town? Railway Express relied on by generations of Americans for speeding gifts and goods safely to their destinations, suggests you do it now. And here's why: The shipping needs of our country at war are urgent.

You, as a gift sender, can help us serve your interests, too, by doing these three simple things:

- 1** Shop and ship before *December 1st*. Phone Railway Express when the packages are ready to go.
- 2** Wrap your gifts carefully and securely.
- 3** Address them clearly with your own and the consignee's name, street number, city and state.




NATION-WIDE

RAIL-AIR SERVICE

MORE POWER LESS WEIGHT

GRINDS
MILLS
DEBURRS
ENGRAVES
POLISHES
FINISHES



$\frac{1}{8}$ H. P.
35,000 R. P. M.
Weights only
35 oz.

• Extra power and higher speeds for faster, smoother work on steel, non-ferrous metals, plastics, and most other materials. Speeds up to 35,000 r.p.m. under load reduce frictional wear on mounted wheels and cutters through lower operating pressure by as much as 50%.

STREAMLINED PLASTIC CASE

Practically indestructible case fits the hand and mounts in stand, vise, or lathe. *Guaranteed shockproof on AC or DC without ground wire.* For close jobs attach COOLFLEX Flexible Shaft which extends full power and speed to 9-oz. cool-running handpiece.

PRECISE PRODUCTS COMPANY
1318 CLARK ST. • RACINE, WIS.



THE PRECISE 35

Send
FOR THIS HELPFUL
16-PAGE BOOKLET



(Continued from page 360)

will not be so inflexible as to harm industry. The agency is willing to allow for any increase in direct costs such as labor and materials, and allow an historical margin of profit in computing the new price at which the manufacturer can sell his product.

At present the OPA hopes to deal with the problem of pricing on an individual basis. Any large scale departure from this policy, such as blanket increases, might prove to be inflationary and get out of hand, it is feared.

Prices on essential civilian items that are so low as to impede production will be adjusted upwards by the OPA, Mr. Kelly stated.

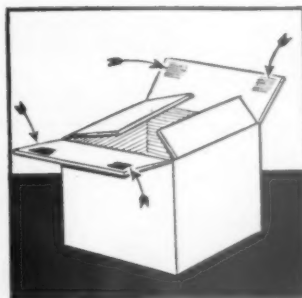
1 1 1

RETRIEVING SHIPPERS

Spot Sealing Helps to Conserve Containers

WITH paperboard and paper still heading the list of "critical" items of production, little hope is held out officially for easing of the current shipping container situation. This explains why more and more manufacturers are stepping up their efforts to retrieve shipping containers for re-use. A single case, if properly treated, can be used at least four times before it is worn out and fit only for scrap salvage.

Retailers who wish to cooperate in paperboard conservation complain that too many shipping cases are full-sealed, thus necessitating cutting or tearing the box to get it open. To meet this situation, many shippers now are "spot sealing" their containers, putting the adhesive only on the four corners of the outside flap. This makes a strong bonding, but still enables the



Spot-Sealing Saves Shippers

emptier to open the container with his fingers alone, or with the aid of a small wooden paddle.


A survey of retail stores reveals that the larger chain organizations are cooperating fully in the conservation effort, but that many independent merchants still are unaware of the fact that without re-use, the government quotas imposed on shippers' purchases of new containers would reduce deliveries of merchandise. Hence the growing practice of imprinting a conservation message on every container, or on gummed labels or tape to be affixed to each case.

"Please do not throw this case away," reads one widely-used instruction. "Containers are critically scarce. Unpack carefully—avoid rips or tears. Because of a serious shortage of corrugated shipping cases it is necessary for all of us to save these cases for re-use. Therefore please unpack carefully as follows: if container is gum taped, cut tape and collapse box. If container is spot glued, break glue on flaps by sliding a

(Continued on page 365)

In War or in Peace MILWAUKEE WROUGHT WASHERS encircle the Globe!

STEEL
BRASS
COPPER
BRONZE
STAINLESS STEEL



ALUMINUM
SPRING STEEL
FIBRE
MONEL METAL
ETC.

"The World's Largest Producer of Washers"

WROUGHT WASHER MFG. CO.

2113 SOUTH BAY STREET
MILWAUKEE 7, WISCONSIN

WHEN DEVELOPING

NEW PRODUCTS

Plan Also to Pack and Ship

...because economical and safe packing will be and important merchandising factor.

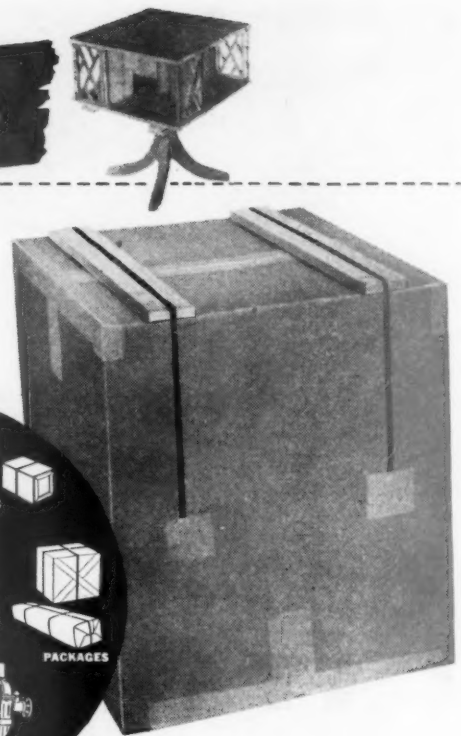
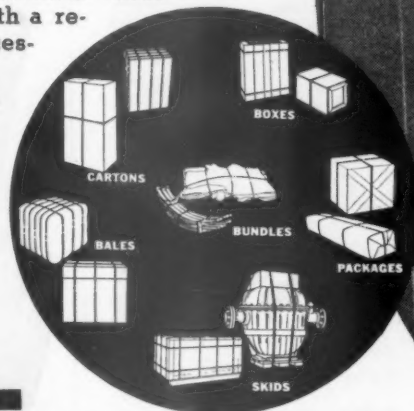
Here are two ways the Signode System of Steel Strapping can serve you. (1) To reinforce your present container assuring good delivery condition (2) Combined with a re-designed container Signode eliminates unnecessary weight.

Signode packing and stowing methods, developed by Signode Shipping Engineers and carefully tested and checked in the Signode Laboratory, are available for every type of product.

As your planning proceeds, consider the packing problem as an important part of the job. Call or write your nearby Signode representative. He is ready to serve you in helping to solve your problem.

34 Branches throughout the Nation

SIGNODE



SIGNODE
STEEL STRAPPING COMPANY
2602 N. Western Ave., Chicago 47, Illinois
Brooklyn, N. Y.: 371 Furman St. San Francisco, Calif.: 454 Bryant St.

**FABRICS
FOR EVERY
INDUSTRY**

**WHATEVER FABRIC
YOU MAY NEED**

Any Kind...
for Any Purpose

ASK BURCOTT MILLS

For many years BURCOTT MILLS has successfully supplied hundreds of the nation's leading industries with the textiles they require.

Tell us what you want the fabric to do, and we will quote you on the construction that will do the job. No obligations, of course.

We are headquarters for

COTTON DUCK	OSNABURG
CHEESE CLOTH	DRILL
SHEETING	CANVAS
MUSLIN	FLANNEL
FILTER CLOTH	TOWELS

...and many other fabrics. Stocks in Chicago and 20 other warehouses throughout the country.

EVERY INDUSTRIAL FABRIC
Burcott Mills
FROM CHEESE CLOTH TO CANVAS

616-J West Fulton St., Chicago 6, Ill.

**Output Increased
with
TUBULAR RIVETS**

Don't use solid rivets — use tubular rivets with Chicago Automatic Rivet Setters, because tubular rivets with Chicago equipment speed up production and lower unit costs. Get all the facts, especially on your war products. Even though small solid rivets are specified, send us sample assemblies so that we can fasten them with proper tubular rivets and give you a production schedule. Then submit the tubular riveted assembly for governmental approval and you will invariably receive an O.K.

A typical fast operating machine that automatically feeds, inserts and clinches a tubular or split rivet with each pedal operation. Other machines available for setting up to 4 rivets at a time — bench and pedal types.

Chicago Rivet

AND MACHINE CO.

9607 W. JACKSON BLVD., BELLWOOD, ILL. (Chicago Suburb)
TUBULAR AND SPLIT RIVETS IN ALL RIVET METALS



A Salute to CATALYSTS

Planes, over land and sea, roar a salute to catalysts and to the refining industry . . . the combination which has accomplished the seemingly impossible . . . in producing large quantities of high octane gasoline in record time.

From the start, The Harshaw Chemical Company participated in this enormous job by supplying catalysts for ALKYLATION, ISOMERIZATION, DEHYDROGENATION, HYDROFORMING, HYDROGENATION, POLYMERIZATION, DEHYDRATION.

The potential uses for catalysts are unlimited. All indications point to increased possibilities for wider industrial uses in manufacturing applications not yet explored.

Samples are available for test purposes.

TYPICAL CATALYSTS

Anhydrous Hydrofluoric Acid • Aluminum Chloride
Boron Trifluoride • Anhydrous Hydrochloric Acid

Activated Alumina
Chrome Alumina

Chrome
Cobalt
Iron
Magnesia
Molybdenum

Molybdenum Alumina
Tungsten Alumina

Nickel
Phosphates
Thorium
Titanium
Tungsten

We have a large capacity for pelleting

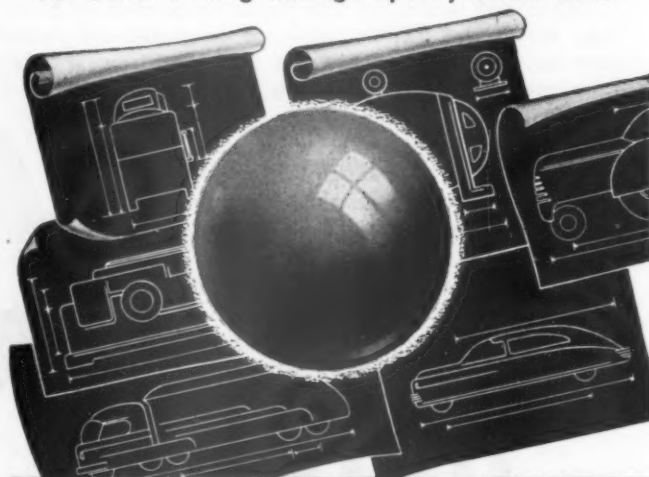
THE HARSHAW CHEMICAL CO.

1945 East 97th Street, Cleveland 6, Ohio
BRANCHES IN PRINCIPAL CITIES

Partners in Industry's Progress

STROM Balls Serve The Nation NOW AT WAR—LATER IN PEACE

Now on fighting fronts and war-production lines Strom Steel Balls are contributing to the great offensive of the United Nations. When peace is won Strom Balls will be equally instrumental in solving the problems of design and production of better peacetime products for home and industry. For Better Rolling Mileage Specify Strom Balls



Strom

STEEL BALL CO.
1850 South 54th Avenue • Cicero, Illinois

LEE-BUILT SPRINGS

— always dependable



THE supplier needs a thousand eyes
to foresee all customer demands—
the buyer needs but one, to spot a
supplier having those thousand eyes.

Ask About SCIENTECH Spring Service



LEE SPRING CO., Inc.

30 MAIN STREET

BROOKLYN, N. Y.

(Continued from page 362)

flat, blunt instrument back and forth underneath flaps. Keep containers dry and free from dirt."

Another reads, "IMPORTANT! Save this empty case. Handle carefully—it's worth money! 1. Pry open bottom. 2. Knock down flat. 3. Insert inner packing. 4. Ask your jobber, supervisor or our salesman about credit and collection."

Another shipper inserts a printed message reading, in part, "CASH for your re-usable shipping containers. Re-usable containers are worth *three times* as much as damaged ones, which bring only waste paper prices . . . Save your *damaged* containers and waste paper for scrap—for every pound of scrap is needed—but save all usable containers and turn them into cash. We will buy back every usable container in which you have received our products."

1 1 1

THREE NEW REGULATIONS TO SPEED TERMINATION SETTLEMENTS

DELEGATION of authority to all war contractors to make final settlements of net claims submitted to them for less than \$1,000 where claimant keeps or disposes of all inventory is included in Regulation No. 6, one of three new regulations issued by the Office of Contract Settlement to speed up settlement of terminated war contracts. This regulation also makes certain amendments to the subcontract termination article previously announced in Order No. 6 of the Office of War Mobilization and in the principles to govern the settlement of subcontracts.

Deals With Cost Principles

Regulation No. 5 deals with statement of cost principles forming a part of the Uniform Termination Article for Fixed Price Supply Contracts. It eliminates certain provisions which have been found impracticable and which in view of recent Federal income tax regulations were deemed unnecessary to protect the interest of the Government. The first provision eliminated is that portion of subparagraph 1 (f) which provided that the loss on special facilities with respect to which a contractor was entitled to reimbursement should not exceed the adjusted basis of such facility for Federal income tax purposes immediately prior to the date of the termination of a contract. This provision was of such remote significance that its retention in view of the practical administrative difficulties was not deemed desirable. The elimination of this provision will relieve the government and war contractors of the necessity of ascertaining the Federal income tax status of such facilities.

A further elimination was paragraph 3 (e) of the Statement of Cost Principles which provided that:

"Costs which, as evidenced by accounting statements submitted in renegotiation under section 403 of the Sixth Supplemental National Defense Appropriation Act, 1942, as amended, were charged off during a period covered by a previous renegotiation, may not be subsequently included in the termination settlement if a refund was made for such period, or to the extent that such charging off is shown to have avoided such refund."

Nothing comparable to this provision is applicable to completed contracts. Its administration in connection with terminated contracts has been found unworkable.

Its elimination will facilitate the speedy settlement of terminated war contracts and will dispense with the necessity of the Government agencies and war contrac-

(Continued on page 366)



Everlasting Fastenings by HARPER Chicago

The Harper organization is known as "Headquarters for Everlasting Fastenings" because it specializes in the manufacture of bolts, nuts, screws, washers, rivets and accessories made of Brass, Naval Bronze, Silicon Bronze, Copper, Monel and Stainless. Nothing in common steel. 4360 items in stock. Specials made to order. Write for 104 page, 4 color catalog and reference book. The H. M. Harper Company, 2606 Fletcher St., Chicago 18, Ill. Branch offices in principal cities.

MONARCH
The Wheeler From Coast to Coast.




OPEN SIDE TRUCK



DROP SIDE TRUCK

Skillfully engineered fibre box trucks. Indispensable for material handling and maintenance.

Write for sizes and price schedules today.

Let Monarch serve you tomorrow.

Write to Purch St.

STANDARD HOLLOWARE CORP.
WHITESTONE • LONG ISLAND • N. Y.

DU PONT CHLORINATED SOLVENTS

For general industrial use where non-flammable or moderately flammable solvents are indicated. Powerful, highly effective solvents for fats, waxes, oils and other organic material distilled from extracted residues.

	Boiling Range, °C.	Lbs. per gal.
Methylene Chloride (Dichloromethane)	39.3-40.1	11.08
Chloroform, U.S.P. & Technical	60.4-61.4	12.43
Carbon Tetrachloride, U.S.P. & Technical	75.2-76.1	13.31
Trichlorethylene	86.5-87.5	12.30
Perchloroethylene (Tetrachlorethylene)	120.5-122.0	13.55
Tetrachlorethane (Acetylene Tetrachloride)	146.3*	13.31
Pentachlorethane	161.9*	14.00

*Approximate boiling point

At present, these solvents, with some exceptions, are restricted to war uses. Limited amounts, however, are available for research. For full details, consult our nearest district office:

Baltimore, Boston, Charlotte, Chicago, Cleveland, Kansas City, New York, Philadelphia, San Francisco. Or write direct to: E. I. du Pont de Nemours & Co. (Inc.), Electrochemicals Department, Wilmington 98, Delaware.

DU PONT ELECTROCHEMICALS



BETTER THINGS FOR BETTER LIVING... THROUGH CHEMISTRY

(Continued from page 365)

tors ascertaining the renegotiation treatment of costs included in termination claims.

Also approved was Regulation No. 7, dealing with fair compensation, which determines that the prime contract and sub-contract termination article previously announced by Order Nos. 1, 2 and 6 of the Office of War Mobilization, as amended, conform to the Contract Settlement Act of 1944. It further establishes the standards and methods to be used in the negotiation of settlements by agreement under the Act in those cases in which settlement is made on the basis of costs and profits. This regulation provides for the exercise of good business judgment in negotiations in order to insure fair compensation and speedy settlement.

These three new regulations are designed to speed the settlement of terminated war contracts, said Robert H. Hinckley, Director of the Office of Contract Settlement.

CIVILIAN PRODUCTION TO START SIX MONTHS AFTER V-E DAY

PRODUCTION of civilian consumer goods will not start until at least six months after the defeat of Germany, it was predicted at the opening session of the Electric League of Pittsburgh meeting at Hotel Roosevelt. Stating that there would be plenty of material available when the German phase of the war is over, J. H. Ashbaugh, vice president of the Westinghouse Electric and Manufacturing Company and manager of its Appliance Division, said:

"I don't question that there will be plenty of material available, but it will take time to get it in suitable form and at the end of a six month period some production should be underway." He pointed out that it will require "about four months to get material, one month to fabricate parts and production should start in the fifth or sixth month."

"The first problem that faces the electric appliance industry is getting production coming from the assembly lines, and I can assure you that it was a lot easier to start up war goods than it will be to start up consumer durable goods."

Declaring that a better job on price control has been done in this war than in the last, the Westinghouse executive said that the true test of these controls will be their effectiveness in the coming months during the first period of transition from war to peace. He cited a recent cost analysis of a Westinghouse product that originally cost \$25 to make, now would cost \$35, or an increase of 35 per cent.

"In this analysis was overtime, rearrangement, training expenses, and other items of cost not of a normal nature, so we eliminated those items and found our increase was 21 per cent. Of this 21 per cent increase, 50 per cent is for labor, 30 per cent material and 20 per cent overhead, caused largely by the demands placed on the clerical force to keep up with present day requirements of government accounting and other regulations."

He added that 21 per cent cost increase may be reduced by improved manufacturing, pointing out the Westinghouse had been able to reduce the cost of the Army's famed "Bug Bomb" container by 10 per cent, even though it is a simple device.

He said that immediate post-war appliances will not be far different from those on the market in 1940 and 1941 because "by going back into production on the basic designs of pre-war, we will be accomplishing the best results. And this is common sense business be-

(Continued on page 369)

BETTER INKS BETTER DELIVERIES



COMPLETE
SHIPPING ROOM
SUPPLIES



YOUR SHIPMENTS are IMPORTANT

Whatever their destination...**CLEAR**
...**EASILY READ**...**PERMANENT STEN-**
CILLED ADDRESSED SHIPMENTS will
help to speed and insure their deliv-
ery on time. Diagraph-Bradley non-
settling, non-clogging stencil and
marking inks have been developed
through 50 years of research to do
the best job of marking for you.

DIAGRAPH-BRADLEY STENCIL CUTTING MACHINES FOR CUTTING LETTERS

$\frac{1}{2}$ ", $\frac{3}{4}$ ", $\frac{7}{8}$ ", $1\frac{1}{4}$ ", $1\frac{1}{2}$ " and $1\frac{3}{4}$ " HIGH
Most export shipments require $1\frac{1}{2}$ " letters, or larger



DIAGRAPH-BRADLEY

STENCIL MACHINES

DIAGRAPH-BRADLEY STENCIL MACHINE CORPORATION
NO. 48 DIAGRAPH BRADLEY BUILDING
ST. LOUIS 8, MISSOURI

DISTRIBUTORS IN PRINCIPAL CITIES

WORLD'S OLDEST AND LARGEST MANUFACTURER OF STENCIL MACHINES

PAPERS FOR INDUSTRY



YES—WHAT IS NEW ABOUT INDUSTRIAL PAPERS

"—paper as a **material** to be used in a
product is startling to many — but because it
lends itself to almost limitless treatments,
paper is one of the most versatile materials
available." *

*From "Industrial Papers—The New Production Answer"
— send for your FREE COPY today.

REG. U.S. PAT. OFF.



CENTRAL PAPER COMPANY INC.

2446 Lakeshore Drive, Muskegon 28, Michigan

Vascoloy RAMET

LEADING THE INDUSTRY
IN CARBIDE TOOLS
SINCE 1930
DIES
TANTUNG CUTTING TOOLS

VASCOLOY-RAMET CORPORATION
NORTH CHICAGO, ILLINOIS
DISTRICT SALES AND SERVICE IN PRINCIPAL CITIES
In Canada: Carbide Tool & Die Company
Hamilton, Ontario

THE SUPERIOR TANTALUM-TUNGSTEN CARBIDE TOOLS

EASIER MACHINING

WHEN IT'S A SHENANGO-PENN BRONZE CENTRIFUGAL CASTING

USE Shenango-Penn centrifugally cast bronzes to lower your machining costs. Machining is easier, there is less metal to remove, production is faster—because our process develops such a fine, even grain structure. Castings are uniformly dense and strong, free of sand inclusions and other imperfections.

Due to superior values, Shenango-Penn castings are being used in large quantities in shipbuilding, aviation, ordnance and other war industries. As war needs slacken, centrifugally cast bronzes will be available for hundreds of peacetime applications, too—where rings, bushings, bearings and other tubular parts of better than

average quality and durability are wanted.

Shenango-Penn castings are made in all bronzes and other non-ferrous and ferrous alloys. Cylinders and tubular bars can be cast with almost any wall thickness, from 2" to 26" O.D., up to 26 feet long. Supplied as rough castings, or machined to your specifications.

Ask for a free copy of our Bulletin 148

SHENANGO-PENN MOLD CO.
2451 WEST THIRD STREET • DOVER, OHIO
Executive Offices: PITTSBURGH, PA.



Lyon Steel Stools... designed for comfort and efficiency... built to last under hard service... actually cost less than ordinary wood stools. Check prices of two models illustrated for proof! 56 models in 7 heights available to meet exact needs of manufacturers of clothing, shoes, electrical equipment, plastics, and any industrial plant, or where inspection and assembly of small finished parts are included in production procedure. Order today from your distributor.

Prices are F. O. B. Factory. When shipment is made from nearest assembly plant, prices will be quoted F. O. B. that plant.

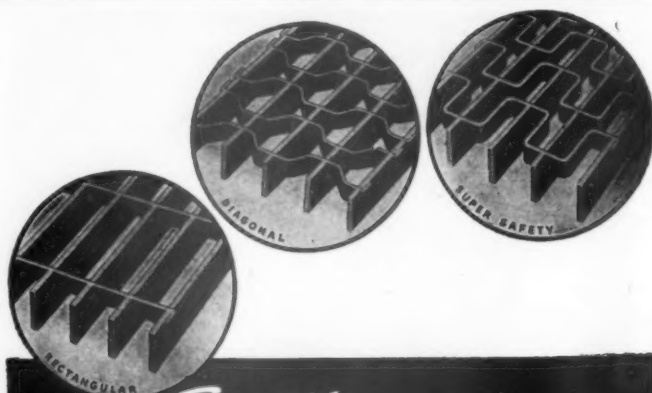
WHAT ABOUT POST-WAR?
Do your post-war products include sheet metal or aluminum? Check Lyon's manufacturing and designing facilities.

LYON METAL PRODUCTS INCORPORATED
General Offices:
1183 Madison Ave., Aurora, Ill.
Branches and Distributors in All Principal Cities



Model No. 426—26" high. Has adjustable steel back, large, comfortable 14" square seat, and forged steel glide feet... **\$2.40**

Model No. 22—22" high. Is equipped with large, comfortable 14" square seat and forged steel glide feet... **\$1.70**



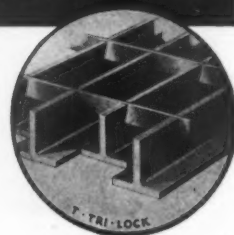
Specify
TRI-LOK

OPEN STEEL FLOORING • SAFETY STEPS
CONCRETE ARMORING T. TRI-LOK

DRAVO CORPORATION
300 PENN AVENUE, PITTSBURGH, PA.
REPRESENTATIVES IN PRINCIPAL CITIES



Full descriptive catalog of Tri-lok Grating, Safety Treads and other products on request.



(Continued from page 366)

cause it will be accomplishing the best results for the consumer, as he will get quality, proven merchandise quickly; for the dealer and distributor, as we will get him back into business with no risk of untested and untried products; for our own employes, as it puts them back to work quickly thus permitting them to purchase goods in general to help stabilize business once more."

Mr. Ashbaugh said most of the "post-war dream products" are coming from these people who have no responsibility to produce, sell them or service them. "It is a time consuming program to bring out a new product or even make major changes in an existing product," he said.

1 1 1

D. D. T. SPRAY TEST SUCCESSFUL

THE new "miracle" insecticide, D.D.T., has been reported 100 percent effective in its first extensive test on agricultural pests in Pennsylvania, reports the Weekly News Bulletin of the Pennsylvania Department of Agriculture.

Just as D.D.T. has conquered the typhus louse and malarial mosquito on the battle fronts, it has now spelled the doom of the gypsy moth which is rated as Pennsylvania's No. 1 plant enemy, far more destructive than the Japanese beetle and the European corn borer, both of which the powerful insecticide is known to kill.

From cooperating Federal and State Department of Agriculture officials in charge of the gypsy moth control and eradication program that has been under way for 12 years in the Luzerne-Lackawanna County area in north-eastern Pennsylvania, where their efforts have prevented the pest from spreading to other parts of the State, it was learned that:

On May 3 a solution of D.D.T. was sprayed from an airplane on a 20-acre woodland tract in Jefferson Township on the eastern edge of Lackawanna County about 10 miles east of Scranton, scattering the insecticide in a fine mist filtered through trees to the ground, at the rate of five pounds to the acre;

Between May 3 and 16, and since the latter date, no living leaf-feeding insects, practically no mosquitoes, and no black flies could be found in the D.D.T. treated area, though all of these and gypsy moth caterpillars could be found in abundance in untreated neighboring areas. Birds continue to be seen and heard in the treated woodlands; poultry and grazing cattle on a farm across the road from the area where particles of the insecticide settled, are unaffected after nine weeks;

"Observations have now been completed through the entire gypsy moth egg hatching season," J. M. Corliss, entomologist in charge of Federal gypsy moth control activities in Pennsylvania, declared. "Not a single worm has survived the airplane's one D.D.T. spray application. Before spraying, we placed 20 small plates of glass on the ground one to each acre. Each plate afterwards showed a generous deposit of needle-like crystals, proving perfect penetration and coverage. A live caterpillar dropped on one of these plates today will curl up and die shortly after."

"The test has been most successful. Final proof of this came about July 5 when we discovered that D.D.T. even kills the gypsy moth in its pupal or inactive stage."

Much Research to be Done

Caution against too high hopes for the performance and general use of D.D.T. (dichlo-diphenyl-trichloroethane) in eliminating such insect pests as Jap beetles, corn borer, colding moth, aphids, flea beetles and others,

(Continued on page 370)

famco Announces A BRAND NEW LINE OF FOOT-POWERED SQUARING SHEARS



MADE IN FIVE SIZES

Famco proudly presents a new, highly efficient, foot-powered squaring shear . . . the result of many months of designing, engineering and testing . . . available in 22", 30", 36", 42" and 52" cutting widths.

● If you need a squaring shear, it will pay you to investigate the latest thing on the market. Famco has developed a new, low cost, foot-operated (motorless) machine that's extremely powerful . . . will cut up to 18 gauge mild steel.

This machine is ruggedly built of semi-steel, accurately machined. The cross-head is reinforced with a steel tie rod for proper knife alignment and accurate shearing. Compressing springs are encased to practically eliminate their breakage. Knives have tool steel cutting edges.

Fast, accurate depth setting is accomplished with back gauges moved on heavy support rods by means of graduated racks and pinions. All models are equipped with front, back and side gauges. The "hold-down" attachment is furnished with the 36", 42" and 52" sizes.

● Write for information and prices on this inexpensive, efficient new line of shearing machines.

FAMCO MACHINE COMPANY 1313 Eighteenth Street, Racine, Wisconsin



Famco builds 32 models of bench and floor type arbor presses that deliver from 1/2 to 15 tons pressure.

Famco Foot Presses are made in 10 sizes, for bench or stand mounting . . . save cost of power presses.



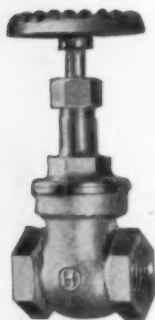
famco

ARBOR PRESSES • FOOT PRESSES • SQUARING SHEARS

HAMMOND VALVES

Standard of value with
the trade for over
30 years

Production of war
materials comes
first now.



No. 600
gate valve

Hammond Valves are ideally suited for standard equipment on industrial apparatus and machines. These high grade precision built valves are suitable for steam, water, oil, air, vacuum or gas service up to 125 lbs. working steam pressure. The Hammond line includes globe valves — angle valves — gate valves — check valves for iron pipe and copper tubing, also special valves. Sizes from 1/4" to 2". It will pay you to investigate Hammond Valves for use on manufactured equipment.

HAMMOND BRASS WORKS
HAMMOND, INDIANA

VERD-A-RAY
SPONSORS

**SLOGAN
CONTEST!**

\$5,000.00
IN PRIZES

**ASK YOUR WHOLESALE
OR WRITE DIRECT**
VERD-A-RAY CORP., Toledo 5, Ohio

(Continued from page 369)

was expressed by Secretary Miles Horst, who evidenced great pleasure with the far-reaching results of the gypsy moth test.

"It will take time to make satisfactory tests," he declared. "We know it will keep flies away from stables and barns, homes and kitchens. But we also know that it will kill some insects that are beneficial unless care is exercised in its use. Among others it may kill honey bees that are valuable in fertilizing fruits and clovers, unless proper precautions are taken. Much research remains to be done with all possible speed."

PREDICTS WIDER PEACE-TIME USE OF MAGNESIUM

WIDESPREAD use of magnesium to reduce dead weight in postwar commercial and consumer products, thus making possible faster machines and easier to handle household appliances, is predicted by R. P. Lansing, vice president, Bendix Aviation Corporation.

Speaking before the first annual meeting of the Magnesium Association, Mr. Lansing, whose company operates one of the largest magnesium foundries in the country, based his prediction upon progress of the industry during the war.

"We are in a position today where we have solved the major problems of fabricating and protecting magnesium and of being able to offer a full range of magnesium products to meet those uses for which its properties of light weight and strength most aptly fit it," he stated.

Citing the fact that even before the war a printing press manufacturer was able to increase the speed of his presses by 25 per cent through the use of "this lightest of all practical structural metals," Lansing predicted its use in such applications as knitting machines, bread slicing machines, household appliances, portable hand tools, radios, office machines, cameras and the like.

Warning the industry that their largest present market, aircraft, is in for "serious curtailment," he said that immediately following the cessation of hostilities the industry could look for sales of about 1,500,000 pounds of fabricated magnesium per month as against its present fabrication capacity of 15,000,000 pounds a month.

"Of this capacity, about 13 million pounds per month is in casting facilities, divided between about 11 million pounds per month in sand castings and about two million pounds per month in permanent mold and die castings," Mr. Lansing pointed out.

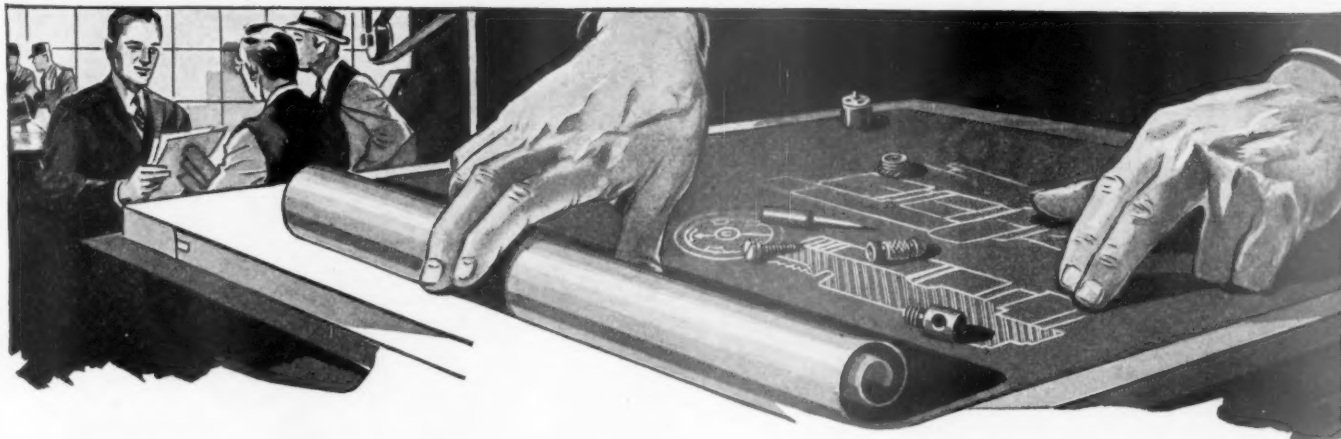
"Capacity in wrought magnesium, including sheets, extrusions and forgings runs roughly around two million pounds.

"About seven to eight million pounds of fabricated magnesium has been going into aircraft parts," he said.

An aggressive postwar sales expansion program should be instituted to develop markets for this capacity, Mr. Lansing stated. The program should be based on two fundamentals, he said.

"One, providing economic justification for the use of magnesium in competition with other metals—and perhaps some plastics. Two, expanding research into new uses for magnesium."

Pointing out that speed with which magnesium can be machined, and the fact that current market prices for magnesium has been brought down to "about 20 cents a pound," Mr. Lansing said that magnesium at present is "in excellent competitive position," on a unit cost basis.



Reading Blue Prints With The *End Use* in Mind

Blue prints are rarely complete. For the finished product to be right, they should be *interpreted* by some one with engineering experience and a practical knowledge of product assembly. And the "end use" must be kept constantly in mind.

Here at "Newton" this has always been standard practice, peace or war. Over the years it has made Newton Screw Machine Products "standard requisition" in many thousands of machines, appliances and other fabrications in every section of the country.

Although our schedules are now relatively full, if you need screw machine products up to $\frac{5}{8}$ " size, let us know at once. You might hit an open spot.

NEWTON SCREW MACHINE PRODUCTS
THE NEWTON MANUFACTURING CO., PLAINVILLE, CONN.

**NO MERCY
FOR THE
LITTLE DRIP**
or BIG ones!

Their Doom is Sealed! Not a chance for "drips" of water, steam, oil, chemicals or gases to get away—where there are Fel-Pro Metallic Packings, Rings or Pump Packings.

Leading Machinery Manufacturers are using Fel-Pro Packings as standard equipment; all industry is using them for replacement; because they're the best protection against power-weakening, money-wasting leakage. Send for the Free Fel-Pro Folder that shows a Packing for every purpose.

36 actual samples of sealing materials with application data. Also consult us on your difficult sealing problems.

Felt Products Mfg. Co.,
1514 Carroll Ave., Chicago 7, Ill.

FEL-PRO
GASKETS
packings • sealing materials

SYNTHETIC RUBBER
FELT FIBRE
PAPER CORK
ASBESTOS

TISSUE TIPS by VICTORIA



Specify VICTORIA TOILET TISSUES

Single Fold, Double Fold or Black Core—for dependable quality.
Victoria Paper Mills Co., Fulton, N.Y. Craftsmen in paper-making since 1880.

PAGE *for* WIRE



WIRE has always been the business of **PAGE**. That means not only *making* wire of every kind, but also cooperating with manufacturers in finding better ways of *using* wire. As veterans in the manufacture and use of wire, **PAGE** has a definite service to offer industry.

SHAPED WIRE • When you can "do it with wire" you cut production cost. Perhaps **PAGE** can show you how. Certainly **PAGE** can produce wire shaped to your specifications, drawn from Stainless Steels, Carbon Steels or Armco Ingot Iron, up to .250" square and widths to $\frac{3}{8}$ inch.

WELDING WIRE • **PAGE** local distributors offer welding electrodes of Carbon Steels and a complete range of Stainless Steels for every type of welding.

GENERAL WIRE • Spring wire, rope wire, aircraft wire, telephone wire—think of almost any kind of wire and **PAGE** either makes it or can make it for you.

If your product or production involves the use of wire, it will pay you to

... get in touch with Page!

PAGE STEEL AND WIRE DIVISION

Monessen, Pa., Atlanta, Chicago, Denver, Los Angeles,
New York, Pittsburgh, Portland, San Francisco



In Business for Your Safety

AMERICAN CHAIN & CABLE COMPANY, Inc.
BRIDGEPORT • CONNECTICUT



**BEAVER
No. 371**

—a new **FULLY ADJUSTABLE** Threader for pipe up to $\frac{3}{4}$ " and bolts up to 1". Write for Catalog 44.

BEAVER PIPE TOOLS, INC.

1144 GROW AVENUE

WARREN, OHIO

THOMAS TRUCK *of Keokuk*



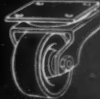
THOMAS MAKES



4 WHEEL TRUCKS



2 WHEEL TRUCKS



CASTERS



RUBBER WHEELS

SUPER CASTERS

- Formed steel construction
- Two rows of ball bearings
- Hardened thrust collar
- Hyatt roller bearing
- Machined wheel face
- Grace gun fittings

The Thomas Super Swivel Caster is all that its name implies — Super in construction and performance, under severe service where most casters are unsatisfactory. Use them for your hardest, toughest jobs.

The Super fork is formed from one piece of $\frac{1}{4}$ " steel plate, offset for added strength. Ball race cups and King bolt welded in place and all moving parts are hardened to move freely and resist wear. Write for new catalog No. 94.

THOMAS TRUCK & CASTER CO.



438 Mississippi River, Keokuk, Iowa

FIBER GLASS INSULATION SHEETS USED ON WAR PLANES

GLASS fibers with a diameter measured in ten-thousandths of an inch, and weighing only four one-hundredths of a pound per square foot when bound with a thermosetting resin and formed into half-inch-thick sheets, are being used in the cabins and flight decks of certain types of U. S. war planes to provide insulation against the extreme cold of the stratosphere and to deaden fatigue causing sound.



Training Plane with glass reinforced plastic fuselage, wide panels and tail cone

The fibrous glass sheets are incombustible and are the lightest inorganic material commercially available for the sound-proofing and insulation of planes. Another important factor is that the sheets gain less than one per cent of their own weight from moisture in the air, when subjected to temperatures of 125 degrees, Fahrenheit, and to 90 per cent relative humidity. Organic material frequently used for heat and sound insulation in planes may gain as much as 40 per cent of its own weight from moisture pick-up under service conditions.

The fibrous glass sheets, known as Fiberglas Type XM-PF, are manufactured by Owens-Corning Fiberglas Corporation, Toledo, Ohio.

NEW EXPLOSIVE RIVET

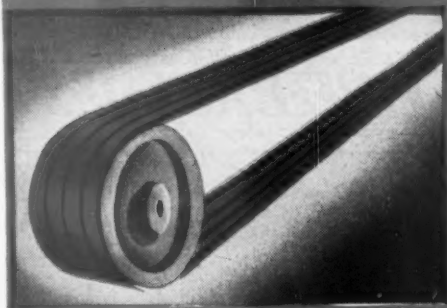
Detonation Expands Entire Shank

AN improved explosive rivet that fits itself to the hole has been developed for greater speed and uniformity of results in riveting military planes, it is announced by the Explosives Department of E. I. du Pont de Nemours & Company. Eventually it is expected to have many other applications.

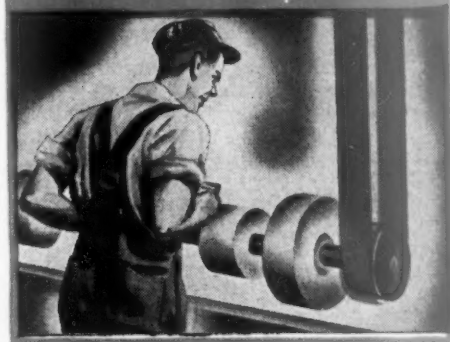
The rivet is expanded from within along substantially its entire shank by tiny explosive charge. This is a marked improvement over the original explosive rivet produced by the Du Pont Company and now used extensively in the aircraft industry. The original rivet, introduced two years ago, was expanded at the end of the shank to lock it in place.

Improvement of the rivet, made of aluminum alloy, was accomplished by embodying in it a small auxiliary

When THIS Breaks-



THIS STOPS!



REDUCE SHUT-DOWNS WITH SCHIEREN LEATHER V BELTING in ROLLS

Save precious man-hours. Save the time loss in shut-downs for replacing broken belts. The use of SCHIEREN LEATHER V BELTING saves this time and money in several ways.

First, superb quality assures delivery of more power at lower maintenance cost over a longer, useful life.

Second, SCHIEREN V BELTING comes in rolls in three sizes — to cover every need. You cut length desired — make your belt right on the job. That saves hours commonly lost in shut-downs for replacement.

Third, SCHIEREN V BELTING saves inventory. With three sizes in handy rolls, there's no need to keep a great variety on hand — and waste still more time searching for the right size.

Finally, after long use, SCHIEREN V BELTS are salvageable for shorter centers and repairs.

SCHIEREN V BELTS have flat leather side walls with a bull dog grip on the pulley sheaves. Run them slack, if you like, and they still deliver additional RPM every minute.

Send for our new descriptive folder on this remarkable Modern Design V Belt.

No finer belting than SCHIEREN's is possible to obtain. That is not a mere claim. It's a statement of fact. That's why we want you to compare the quality and performance of a SCHIEREN BELT with that of any other. May we prove our statement? Ask your nearest distributor — or write us direct.

CHAS. A. SCHIEREN COMPANY
LEATHER BELTINGS • SPECIALTIES
AND HYDRAULIC PACKINGS

31 FERRY ST., NEW YORK 7, N. Y.

60 Front St. W., Toronto, Ont.

MORCK

SPEED-LINE BRUSHES



FOR HEAVY MAINTENANCE WORK

If it's square feet of fast painting you are after . . . then select Morck's Speed-Line Brushes . . . built to do an extra special job for all industry . . . on the line or for maintenance. "The Choice of Master Painters from the Statue of Liberty to the Golden Gate." Ask your dealer for details on Morck's Speed-Line Brushes.

WRITE FOR INDUSTRIAL CATALOG

MORCK BRUSH MANUFACTURING CO.
236 EIGHTH STREET
SAN FRANCISCO, CALIFORNIA

GET ACQUAINTED WITH PLASTICS

20 Booklets and Bulletins on Plastics are listed on "Know How" Pages 10 and 12 of this issue, in addition to other catalog material you may want.

Check Numbers 1 to 18 for this Free material on Plastics. Also be sure to get the 25 Free Booklets and Bulletins listed in the "Know How" Pages (10 and 12) of your October issue of *Purchasing*.

This material is the nucleus of a fine collection of "Plastics" Information. It includes three company magazines.

Yours for the Asking.

(Continued from page 373)

explosive cavity and modifying slightly the explosive charge. The auxiliary cavity extends from the main chamber in the shank toward the head of the rivet. Detonation of the charge expands virtually the entire shank. Thus an exact fit between the drilled hole and the shank is no longer required.

This leeway makes possible more rapid insertion of the rivets. After insertion, the new rivet, like the original, may be expanded by one man at the rate of ten to twenty per minute, as contrasted with two to four per minute for most "blind" rivets.

The new rivets will be available in diameters of five thirty-seconds of an inch and three-sixteenths of an inch in the modified brazier types, and perhaps in other types. The explosive charge is usually detonated with an electric riveting iron which fires the charge in the cavity when heat is applied to the head.

High resistance to corrosion is a characteristic of the new rivet as of the original. The new explosive used has the same non-corrosive, non-toxic and high-stability properties as the explosive in the older type.

Engineers predict that post-war use of the new rivet will be extended to many fields and suggest that it offers exceptional possibilities for speeding the fabrication of such products as radios, refrigerators, automobiles and buses.

NATIONAL FUEL CONSERVATION

THE Solid Fuels Administration and the Bureau of Mines of the Department of the Interior have established facilities for extending material aid to plants in meeting their wartime fuel problems.

Plant-managers facing the problem of procuring suitable fuels to take the place of scarce eastern by-product coal diverted from steam use to coke plants will be assisted without delay in finding alternatives. The assistance may be obtained by communicating with any regional or local representative of the Solid Fuels Administration for War. Regional offices of the SFAW are maintained throughout the Nation for the purpose of ironing out problems arising in connection with coal distribution.

To combat waste in burning coal and other fuel, the Bureau of Mines, of the Department of the Interior, in cooperation with the Solid Fuels Administration for War and representatives of industry, has instituted a National Fuel Efficiency Program. The aim of this program is to provide expert guidance and advice for industrial plants using coal for the generation of power, or for other purposes.

Magnesium Sand Castings Foundry control by x-ray...

Your inquiries solicited by the oldest Magnesium Foundry in the middle west!



AEROLOY COMPANY

4480 HUNT AVENUE

ST. LOUIS 10, MISSOURI

THE PURE OIL COMPANY, Chicago

A COMPLETE LINE OF INDUSTRIAL PETROLEUM PRODUCTS
A Pure Oil engineer will help solve your lubrication problems. Write today.



BE SURE WITH PURE

SAFETEX
HERRINGBONE GUMMED
GUMMED TAPE

**PULL-TAB OPENER
IN EVERY ROLL
SAVES TIME AND TAPE**

SAFETEX TAPES... DELIVERING THE GOODS

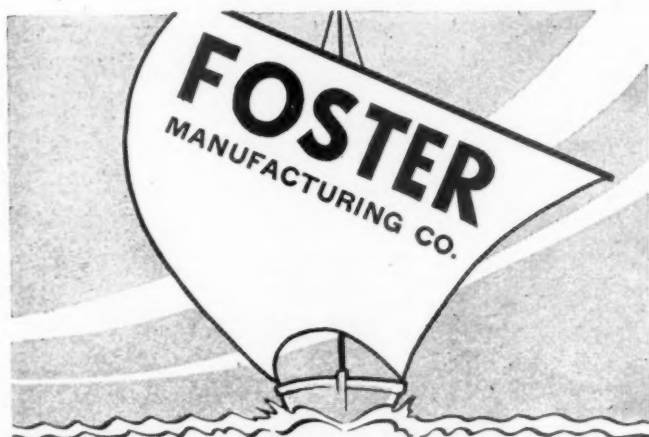
Regular SAFETEX kraft paper sealing tape.
Regular SAFETEX tape on waterproof paper backing.

Corded SAFETEX-string reinforced waterproof paper with regular SAFETEX gumming.

SOLSEAL-waterproof paper backing with waterproof gumming.

Supplies and instruments of war are worthless unless they reach the front. Rugged SAFETEX GUMMED TAPE is doing its part, every hour, to deliver the goods. Sealed with SAFETEX TAPE every carton is bound to get there, securely and undamaged.

CENTRAL PAPER CO., MENASHA, WISCONSIN



RED SAILS *Now* *Your Sales* LATER

We are producing many canvas items, like red sails for the armed forces. However, we may be allotted enough material to make up certain urgent civilian requirements.

BUT Send Us Your Requirements TODAY

Our job now is to determine what items, normally made from canvas and which we normally produce, are most needed by industry. Please send us your present and potential needs so we can decide upon which units to concentrate.

FOSTER MANUFACTURING CO.
430 NOTRE DAME ST., NEW ORLEANS-6-LA.

Materials

PROCESSING EQUIPMENT

Sifters, Crushers, Cutters, Dry and Liquid Mixers, Mills, Grinders, Pulverizers, Conveyor Systems, Complete Installations.

The handling equipment construction "know-how" of the Mercer Engineering Works, Inc., Clifton, N. J. . . . The more than 40 years processing equipment experience of Robinson Mfg. Co., Muncy, Pa. . . . All are embodied in and represented by

MERCER-ROBINSON, CO., INC.
30 CHURCH ST., NEW YORK 7, N. Y.

Materials

HANDLING EQUIPMENT

Trailer Trucks (All Types) Wheel Tractor Cranes (3 to 7 ton) Fork Lift Trucks, Lift Platforms, Hoists, Live Skids, Wheels, Casters.

Advertisers IN THIS ISSUE

A	
Abbott Ball Company	210
Abrasive Products, Inc.	192
Accurate Spring Mfg. Co.	358
Ace Fastener Corporation	228
Acme Steel Company	59
Acushnet Process Co.	29
Aeroloy Company	374
Aircraft Standard Parts Co.	190
Air Express Division, Railway Ex- press	286
Air Reduction Sales Co.	202
Allegheny Ludlum Steel Corporation	215
Allen Mfg. Co., The	158
Allied Machinery & Engineering Corp.	274
Allied Wiping Materials Co.	155
Aluminum Company of America	269
American Cable Division, American Chain & Cable Company, Inc.	68
American Chain & Cable Company, Inc.64, 65, 68, 198, 258, 326,	372
American Optical Company	212
American Rolling Mill Company	149
American Saw & Mfg. Co.	336
American Screw Company	26, 303
American Sponge & Chamols Co.	172
American Steel & Wire Company	377
American Swiss File & Tool Co.	164
Ames Co., B. C.	354
Ampco Metal, Inc.	332
Anaconda Copper Mining Co. & Sub- sidiary Cos.35, 36, 37, 38	256
Angier Sales Corporation	338
Arkwright Finishing Co.	338
Armour & Company (Glycerin Prod- ucts)	208
Armstrong-Blum Mfg. Co.	138
Armstrong-Bray & Co.	288
Armstrong Bros. Tool Co.	357
Armstrong Cork Company	379
Atkins & Co., E. C.	34
Atlantic Screw Works	26

B	
Barnes Company, Wallace	60
Barrett-Cravens Company	159
Bauer & Black	40
Beaver Pipe Tools	372
Behr-Manning, Div. of Norton Co.	146
Bemis Bro. Bag Company	339
Benjamin Electric Mfg. Co., The	329
Besly Company, Charles H.	337
Black & Decker Mfg. Co., The	132, 133
Blake & Johnson Company, The	330
Blaw-Knox Co.	197
Boats Aircraft Nut Corporation	262
Boston Woven Hose & Rubber Co.	131
Bowser & Company, Inc., S. F.	320
Brandt, Inc., Charles T.	166
Briggs & Stratton Corp.	302
Bristol Brass Corporation, The	218
Bristol Co., The	26
Broderick & Bascom Rope Co.	30
Brown Paper Co., L. L.	242
Brown & Sharpe Mfg. Co.	33
Bundy Tubing Company	341
Burcott Mills	363
Burgess-Norton Mfg. Co.	275
Burroughs Adding Machine Co.	230
Bussman Mfg. Co.174, 175	

C	
Carboloy Co., Inc.	206
Carborundum Company	30, 31
Cardox Corporation	280
Central Paper Co.	375
Central Paper Co., Inc.	367
Central Screw Company	26, 277
Central Tool Co., The	355
Century Electric Company	3
Chandler Products Corp.	26
Chase Bag Co.	208
Chase Brass and Copper Company	23
Chicago Metal Hose Corporation	200
Chicago Rawhide Mfg. Co.	52, 203
Chicago Rivet & Machine Co.	363
Chicago Screw Company, The	270
Chicago Show Printing Company	189
Chicago Wheel & Mfg. Co.	220
Clark Bros. Bolt Co.	130
Clark Tractor Co.	271
Cleveland Cap Screw Company, The	138
Cleveland Twist Drill Co., The	55
Cleveland Twist Drill Co. (Mo-Max Division)	283
Columbia Ribbon & Carbon Mfg. Co.	246
Columbus-McKinnon Chain Corp.	292
Connor Engineering Corp., W. B.	194
Continental Can Company	4
Continental Machines, Inc.	287

Continental Screw Company	26, 225
Copperweld Steel Company	331
Corbin Screw Corp.	26, 126
Cortland Grinding Wheel Co.	182
C-O-Two Fire Equipment Company..	173
Crane Co.	46
Curtis Pneumatic Machinery, Div. of Curtis Mfg. Co.	310

D	
Darling Valve Mfg. Co.	255
Darnell Corp., Ltd.	208
Dayton Safety Ladder Company	130
Dearborn Chemical Company, The	282
Delta File Works	196
Delta Manufacturing Company	296
Dennison Mfg. Co.	249
Detecto Scales, Inc.	140
Diagraph-Bradley Stencil Machine Corp.	367
Dick Company, A. B.	229
Dravo Corporation	368
Dumore Co., The	380
du Pont de Nemours & Company, Inc., E. I.	366

E	
Eagle Pencil Company	234
Edward Valve & Manufacturing Co., Inc., The	151, 152
Electric Auto-Lite Co., The	170, 171
Emerson Electric Mfg. Company	207
Esleek Mfg. Co.	232

F	
Fafnir Bearing Company	6
Fairbanks, Morse & Co.	117
Fairfield Manufacturing Company, The	378
Fanco Machine Co.	369
Felt Products Mfg. Co.	371
Firth-Sterling Steel Company	325
Flexible Steel Lacing Co.	299
Forest City Foundries Co., The	278
Formica Insulation Co., The	289
Foster Manufacturing Company	375
Foxboro Company	160
Fox River Paper Corp.	248
Frasse & Co., Inc., Peter A.	54
Friden Calculating Machine Co., Inc.	237

G	
Gair Co., Inc., Robert	263
Garrett Co., Inc., Geo. K.	304
Gates Rubber Co.	348
Gaylord Container Corp.	223
General Box Company	342
General Electric Company 18, 267, 279,	307
General Electric Company, Lamp Div.	143
General Industries Company, The	293
General Instrument Company	165
General Screw Mfg. Co.	26, 288
Globe Steel Tubes Company	136
Gould Commercial Division, National Battery Company	209
Graham & Co., Inc., John H.	190
Graybar Electric Company	66
Great Lakes Steel Corporation	291
Greenfield Tap & Die Corporation	41
Grinnell Company, Inc.	350
Guardian Electric Co.	321

H	
Hammermill Paper Co.	250
Hammond Brass Works	370
Harnischfeger Sales Corp.	50
Harper Company, The H. M.	26, 365
Harshaw Chemical Company, The	364
Hartley Wire Die Co.	288
Hazard Wire Rope Division, American Chain & Cable Company, Inc.64, 65	
Hercules Powder Company	185, 186, 187, 188
Hill Inc., R. O. H.	244
Hinde & Dauch Co.	39
Holliday & Co., W. J.	317
Holliston Mills, Inc., The	44
Holo-Krome Screw Corp.	184
Holyoke Card & Paper Company	252
Howard Paper Company The	231
Hudson Pulp & Paper Corp., Moore & Thompson Div.	359
Hunter Pressed Steel Co.	297
Hussey & Company, C. G.	216
Hy-Pro Tool Company	294
Hyster Company	129

I	
Illinois Gear & Machine Co.	61
Imperial Brass Mfg. Co.	157
Independent Pneumatic Tool Co.	257

Inland Container Corporation	48
Inland Steel Company	5
International Paper Company	247
International Plastics Corp.	281
International Screw Company	26
Interstate Drop Forge Company	213

J	
Jelliff Mfg. Co., C. O.	352
Jenkins Bros.	Back Cover
Jeshke Wire & Specialty Co.	359
Jessop Steel Company	351
Johnson Bronze Co.	142
Johnson Steel & Wire Co., Inc.	294
Jones Company, C. Walker	214

K	
Keasbey & Mattison Company	349
Kerotest Manufacturing Company	167
Kidde & Co., Inc., Walter	61
Kimberly-Clark Corporation	205
Kropp Forge Company	285

L	
Ladish Drop Forge Co.	141
Lamson & Sessions	26
La Pointe Machine Tool Company, The	137
Lea Manufacturing Co.	134
Lee Spring Co., Inc.	364
Leland Electric Company	273
Leschen & Sons Rope Co., A.	53
Libbey-Owens-Ford Glass Co.	298
Linde Air Products Company, The	259
Link-Belt Company	19
Littleford Bros., Inc.	361
Logan Drinking Cup Co.	300
Lowell Wrench Company	148
Lunkenheimer Co., The	128
Lyon Metal Products, Inc.	368

M	
Macklin Company	8
MacRae's Blue Book	244
MacWhyte Company	15
Magnus Chemical Company	312
Manufacturers Screw Products	26
Marsh Corp., Jas. P.	347
Mason Box Company	311
Master Electric Company, The	201
Master Products Co., The	306
Mayers Co., L. & C.	360
McKay Company	315
Mercer-Robinson Co., Inc.	375
Mesta Machine Company	32
Michigan Wire Cloth Company	148
Midwest Abrasive Company	261
Midwest Piping & Supply Company....	123
Milford Rivet and Machine Co.	26
Minnesota Mining & Mfg. Company 156,	344
Morck Brush Mfg. Co.	374
Moore & Thompson Div., Hudson Pulp & Paper Corp.	359
Muehlhausen Spring Corporation	264

N	
National Adhesives	56
National Bearing Metals Corporation	345
National Blank Book Company	245
National Screw & Mfg. Co.	26, 327
National Standard Company	9
National Twist Drill & Tool Co.	27
National Wooden Box Association, The	191
New Britain Machine Co.	49
New England Screw Co.	26
Newton Mfg. Co., The	371
Nicholson File Co.	11
Norton Company	47, 146

O	
Oakite Products, Inc.	194
Ohio Rubber Company, The	343
Okonite Co., The	335
Old Town Ribbon & Carbon Co., Inc.	238
O'Neil-Irwin Mfg. Co.	148
Osborn Mfg. Co., The	7

P	
Pacific Mutual Door Co.	262
Page Fence Association, Division of American Chain & Cable Company, Inc.	198
Page Steel & Wire Division of Amer- ican Chain & Cable Company, Inc.	372
Parker Co., The Charles	26, 352
Parker-Kalon Corporation	26, 42
Parsons Paper Company	240

THE GUN THAT GAVE SPRING ENGINEERS THEIR BIGGEST HEADACHE

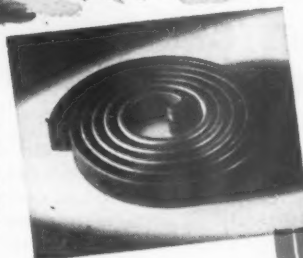
ANTI-AIRCRAFT gun crews call the Bofors 40 mm. "the gun that gets 'em before they get close." Its effective hard-hitting range of 15,000 feet makes it mighty tough for any plane that dares to crash its lethal field of fire.

Furnishing the breech block spring for the Bofors was a tough job too. What made this spring so difficult to manufacture were the very close tolerances on the spacing between the coils, the close dimensional specifications for the inner and outer ends and the extremely rigid specifications as to the angle between the projecting inner stud with the stud on the outside of the spring.

Conventional manufacturing methods were not equal to the task of holding the springs to these specifications. Processing involved the operation of forging, machining, coiling and heat treating. By unusual engineering ingenuity these operations were so closely coordinated and controlled that springs were produced that successfully met rigid government specifications, that in peacetime were almost unknown and believed impossible.

It is things like this that we have learned in these war years about making springs to meet "impossible" requirements that will help us to make the springs for your peacetime needs superior in both quality and performance. If you need springs now or for future application that involve problems beyond the ordinary, get in touch with us.

This spring ejects the shell after firing and returns the breech mechanism to firing position. Coiled clock-spring fashion out of flat cold rolled strip, it is also coned to provide spring action axially.



AMERICAN STEEL & WIRE COMPANY

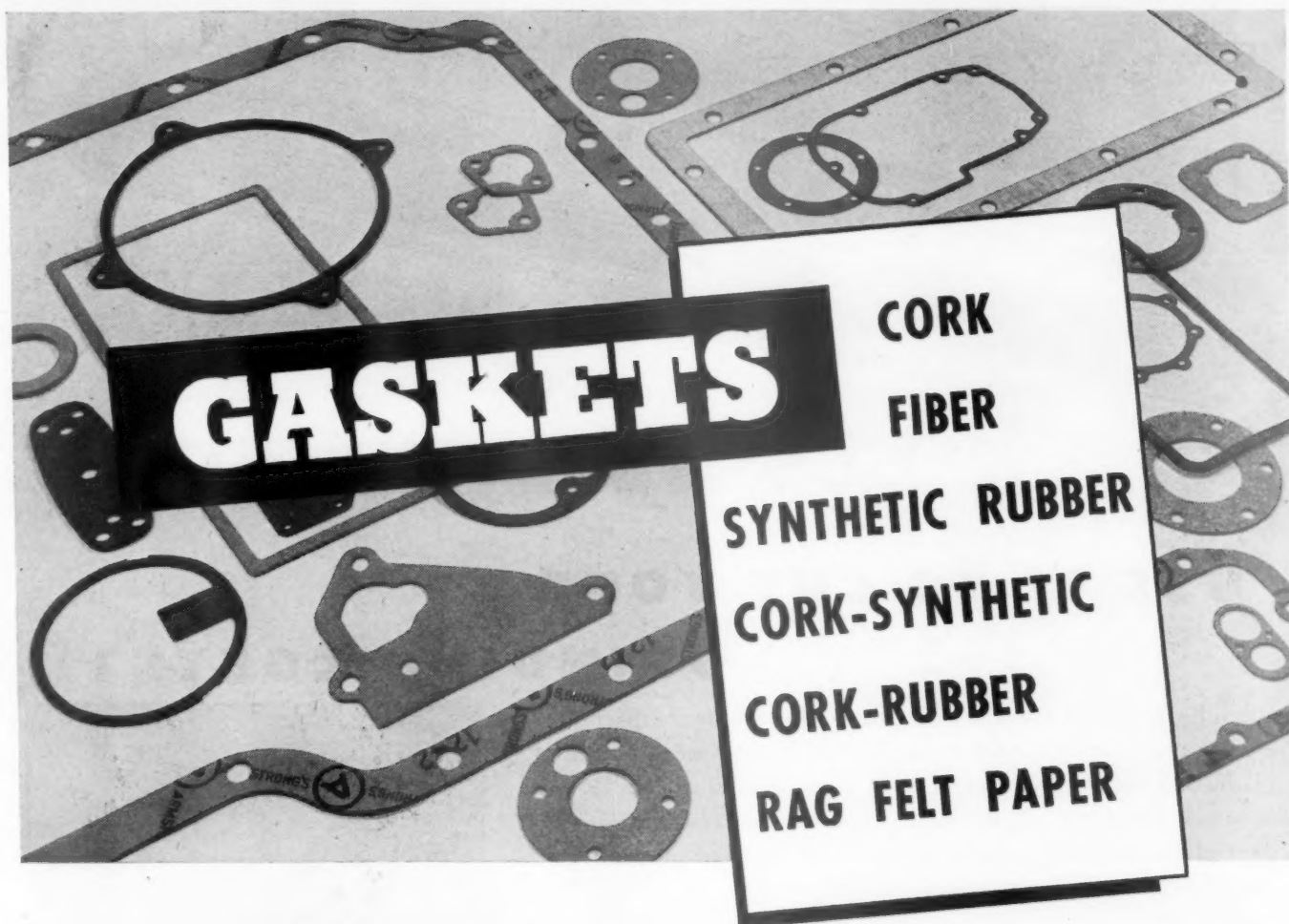
Cleveland, Chicago and New York



Columbia Steel Company, San Francisco, Pacific Coast Distributors
United States Steel Export Company, New York

*U.S.S.
American Quality
Springs*

UNITED STATES STEEL



GASKETS

CORK
FIBER

SYNTHETIC RUBBER

CORK-SYNTHETIC

CORK-RUBBER

RAG FELT PAPER

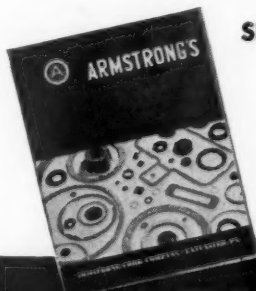
... for all kinds of jobs at temperatures up to 300° F.

YOU have a choice of more than fifty gasket materials made by Armstrong! Each of these materials is the answer to a specific type of sealing problem. There is an Armstrong gasket for every type of application where the temperature does not exceed 300° F.

Included in the Armstrong Line are many different cork compositions, synthetic rubber compounds, cork-and-synthetic-rubber and cork-and-natural-rubber compositions, fiber sheet packings, and rag felt papers. Most of these

materials are available not only in the form of gaskets die-cut to your specifications—but also in sheet and roll goods, tapes, molded shapes, or extruded rings.

You can give your sealing problems to Armstrong with the assurance of receiving sound, unbiased recommendations. For, in addition to a wide range of materials, Armstrong has a background of more than thirty years of gasket engineering. We shall welcome an opportunity to help solve your sealing problems.



SEND FOR NEW FREE BOOKLET

For help in the purchase of sealing materials, write for your free copy of Armstrong's new, illustrated, 16-page booklet, "Gaskets, Packings, and Seals." Address Armstrong Cork Company, Gaskets and Packings Department, 7211 Arch St., Lancaster, Pa.

**ARMSTRONG
CORK COMPANY**

INDUSTRIAL  DIVISION

Armstrong's Industrial Products

GASKETS, PACKINGS, SEALS, and MECHANICAL SPECIALTIES of Cork, Synthetic Rubber Compounds, Cork-and-Synthetic-Rubber Compositions, Cork-and-Rubber Compositions, Fiber-Type Materials, and Rag Felt Papers

RESILIENT SURFACINGS (for desks, counters, etc.) and **FLOORINGS** (for buses, railway cars, etc.) of Linoleum, Linowall, Linotile (Oil-Bonded), Airoflor, Armoflor, Asphalt Tile, Automat, Cork Tile, Monowall, and Traffex

**TEXTILE MILL SUPPLIES - SHOE MATERIALS - ADHESIVES
GLASS INSULATORS**

... These are only a few of the more than 360 products of the sixteen plants of the Armstrong Cork Company.



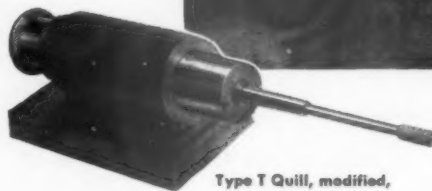
USE IT TO CUT YOUR GRINDING COSTS!

You can hold it in one hand, yet it embodies in a single compact unit all the essentials required to convert a basic machine tool such as a lathe or a miller into a production capacity precision grinder. Its accuracy is making a significant reduction in spoilage waste and its dependable stamina is a positive protection to the production schedule of countless metal working plants.

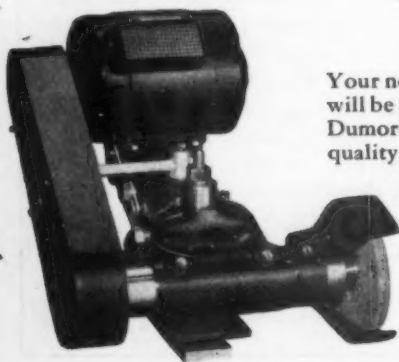
Often the Dumore Quill is used as in the accompanying illustration, mounted alone on a basic machine tool and driven by a power source already available in the basic tool or the plant drive system. More often, of course, the quill is seen and used as the integral "heart" of the familiar Dumore "Tool-Post" Grinder—with the motor and belt drive mounted to the quill-holding frame for flexible adaptability in one self-contained tool. Features of the Dumore Grinder—setup convenience and operating facility, vibrationless precision of $\pm .0001$ " accuracy at speeds up to 42,500 r.p.m., moderate cost, extensive and varied specialized applications—have obvious parallels in management and production interests: job simplification and reduced job training requirements, maintenance of quality standards and reduction of rejection losses, moderate investment requiring modest depreciation provision and allowing reasonable production cost of unit grinding operations.



Dumore X18 Quill in use on large standard grinder



Type T Quill, modified, used alternatively



Your nearby industrial distributor will be glad to tell you how Dumore can save costs and maintain quality in *your* production.

Call him—or write today to The Dumore Company, Tool Division, Dept. TL37, Racine, Wisconsin.

DUMORE

PRECISION AND
OFF-HAND GRINDERS

SOLD BY AUTHORIZED INDUSTRIAL DISTRIBUTORS IN ALL PRINCIPAL CITIES



*arcs leave this point **Fast!***

A POINT TO REMEMBER!



LIKE THIS. Diamond-pointed break jaws confine arcing to the point . . . force the arc to break outside the current carrying area. Contact surfaces stay clean . . . don't pit, don't burn.



NOT LIKE THIS. When ordinary safety switches are opened, the arc leaps across the contact areas . . . along the jaws and blade. It hangs on longer, burns and pits the contact surfaces.



When arcs hang fire, switch contacts become pitted and burnt . . . cause trouble. To avoid this, keep the arc away from the contact area—and put it out *quick!*

Westinghouse Safety Switches do *both*. The diamond-pointed jaw forces the arc to break outside the current-carrying area. Contacts stay clean, last longer, need less care, provide better protection.

For 575 or 600-volt circuits, Westinghouse provides extra protection—the exclusive “De-ion” arc quencher. Arcs are drawn into the grid chamber—divided—quenched quickly!

Protect circuits with Westinghouse Safety Switches. Ratings up to 1200 amps, 600 volts. Call your Westinghouse Representative today. Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa. Dept. 7-N.

J-21299



Westinghouse
PLANTS IN 25 CITIES . . . OFFICES EVERYWHERE

SAFETY SWITCHES

When War Shortages put Maintenance on the Spot..

— this "war orphan"
business found it
paid to have
standardized on
JENKINS VALVES



For the past three years, linen supply houses and laundries have been among the "orphans" of the war economy, getting only what was left in man power and equipment.

Operating equipment has had to withstand abuse and neglect unknown in peacetime, and still keep plants running efficiently at full capacity.

The American Linen Supply Company, one of Chicago's largest plants of its kind, standardized on Jenkins Valves on the strength of their peacetime record. Under the extra strains of wartime operation, these valves exceeded even the management's confident expectation of trouble-free performance.

Records like this, reported by so many industries serving military as well as civilian needs, all add up to convincing proof that Jenkins Valves "cost least in the long run".

THIS BUILDING OWNED AND USED EXCLUSIVELY BY AMERICAN LINEN SUPPLY CO

Telephone
Superior
2964-5-6-7



329-849
N. Franklin St.
Chicago

**AMERICAN
LINEN SUPPLY CO.**

Clean Linen for Business and Professional Use

Mr. R. B. Osgood
Jenkins Bros.
1514 West Fulton St.
Chicago, Ill.

August 21, 1944

Dear Sir:

With reference to our conversation of last Tuesday, we find that there are over 2500 valves in service in our plant, and all, other than special valves, are Jenkins.

Although the plant, when originally built in 1926, was equipped with four different makes of valves, a survey of our performance and cost records led us to standardize on Jenkins, and all replacements since 1928 have been made with Jenkins Valves.

As you know, when the war started, plants like ours were placed pretty far down on the list of non-essential industries. Finding workers and getting materials for proper maintenance has been, and still is, a tough problem.

Under these conditions, we have been greatly pleased with the efficient performance of our Jenkins Valves. They have consistently exceeded our expectations, and have helped us materially to keep our plant operating at full capacity. When more valves are required, they'll be Jenkins, for sure!

Very truly yours,

George Wail
George Wail, Plant Engineer

2500 VALVES are required for efficient control of processing fluids in this large linen supply house. Standardization on Jenkins Valves assured dependable performance, simplified maintenance.

In your plans for reconversion and renovation, it will pay you to specify Jenkins for every valve requirement.

A *New Jenkins Price and Discount Sheet*, dated October 2, 1944, is now available from your Jenkins Distributor — ask him for your copy.

Jenkins Bros., 80 White St., New York 13;
Bridgeport, Conn.; Atlanta; Boston; Philadelphia;
Chicago; Jenkins Bros., Ltd., Montreal; London.



JENKINS VALVES

SINCE 1864

For every Industrial, Engineering, Marine and Commercial Service . . . In Bronze, Iron, Cast Steel and Corrosion-resisting Alloys . . . 125 to 600 lbs. pressure.

Sold Through Reliable Industrial Distributors Everywhere.